Relationships between Stress-Related Working Conditions and Performance: A Comprehensive Investigation

by

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Candidate Declaration

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Abstract

The primary purpose of the current thesis was to examine if and how prominent stress-related working conditions were longitudinally associated with multiple employee performance behaviours. The stress-related conditions examined in this research were drawn from the Job Strain Model (JSM) comprising workload demands, job control and social support (Karasek & Theorell, 1990), and organisational justice theory consisting of distributive, procedural, interpersonal and informational justice dimensions (Colquitt, 2001). Together, these two models were referred to as the JSM-justice model. Three forms of employee performance behaviours were selected to examine the possible differential relationships with the JSM-justice conditions. These behaviours included in-role behaviours, organisational citizenship behaviours directed at other individuals (OCB-I) and organisational citizenship behaviours directed at the organisation (OCB-O). A comprehensive series of analyses, including tests for direct linear, nonlinear and interaction-based associations, were undertaken to determine the strength and nature of the relationships between the JSM-justice working conditions and job performance behaviours.

Two studies were undertaken based on survey data collected at two time points with a time lag of 17 months. Study 1 used data collected at Time 1 to assess the stressor-performance relationships within a cross-sectional design. Study 2 consisted of a two-wave longitudinal panel design and examined the extent to which these relationships remained stable over time. The sample taking part in this research
consisted of Australian-based police officers ($n$ at Time 1 = 640; $n$ at Time 2 = 149) and the data was collected via a self-report survey.

A number of significant findings were revealed in the current investigation. Overall, the findings from Study 1 showed that both the JSM and justice models were linked deferentially, albeit moderately, to in-role and extra-role performance behaviours. The JSM variables collectively accounted for relatively large portions of variance in both in-role and extra-role performance. The regression results provided considerably less support for the dimensions of organisational justice, yet there were some signs that certain resource-oriented fairness variables (i.e., procedural and interpersonal justice) may be influential in the stressor-performance relationship. In terms of the nature of the relationships identified in Study 1, a number of pathways, including direct linear, curvilinear and interaction-based relationships, were found, with the dominant pathway being direct linear. A notable finding that did not reflect the majority of demands-performance research was the positive association between workload demands and performance measures (i.e., as workload demands increased, so did employee performance).

The findings from Study 2 supported some of the significant results from Study 1 including the overall predictive capacity of the JSM-justice model, the positive association between workload demands and employee performance, and the curvilinear relationships relating to justice components, particularly relationship-based justice. However, Study 2 also revealed that some relationships were distinct to either Study 1 or Study 2. Specifically, direct linear relationships involving job control, social support and interpersonal justice, and interactions involving job demands, job control and social support were only evident in Study 1, whereas the
inverse U-shaped relationships between work-based support and organisational citizenship behaviours (OCBs) were only found in Study 2. Moreover, curvilinear relationships were among the strongest relationships found in Study 2, and the strength of these relationships was in sharp contrast to the general absence of direct linear and interaction-based associations in this study.

The overall results from the current investigation highlighted the ongoing relationships between key stress-related working conditions and multiple job performance behaviours, and reinforced the value of utilising the combined JSM-justice framework to examine these relationships. In particular, specific results involving individual components of the JSM-justice models revealed two important long-term trends. First, the significant findings involving the positive impact of workload demands suggest that this stressor may have a challenge-based relationship with performance behaviours, possibly through motivation pathways (LePine, Podsakoff, & LePine, 2005). An implication of this result is that studies investigating workload may consider alternative hypotheses that incorporate the possible positive effects of job demands, such as in the challenge-hindrance model (Cavanaugh, Boswell, Roehling, & Boudreau, 2000), rather than focusing exclusively on the more popular view that work demands are fundamentally deleterious (Cynkar, 2007). Given the likelihood that workloads will increase rather than decrease in the foreseeable future (European Commission, 2011), practitioners may benefit from focusing on ways to improve motivation mechanisms through workload.

The second long-term trend identified in the current project was the positive curvilinear effects attributed to relationship-based resources, including support from
colleagues, fair interpersonal treatments and fair information sharing. Results involving curvilinear effects of relationship-based resources point towards an ongoing relationship that reflects both the conservation of resources theory (Hobfoll, 1998) and the nonlinear hypothesis (Warr, 1994) in examining employees’ performance output. These findings indicate that companies may benefit from managing relationship-based resources and ensuring that these resources are at an optimum level, given that excessive or inadequate levels of these resources are likely to impair employee performance. In terms of implications for future research, the results involving curvilinear effects suggest that future stressor-performance studies may benefit from including tests for nonlinear relationships to gain a more detailed assessment of the specific circumstances in which stress-related working conditions influence employee performance behaviours.
I dedicate this thesis to my husband and the love of my life, Quentin Lawler, whose unwavering support, understanding, patience, and marvellous home-cooked meals kept me sane and level-headed throughout my PhD journey. I promise to improve on my cooking skills when it is your turn to write a thesis.
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List of Abbreviations

CFA  confirmatory factor analysis
CMV  common method variance
COR  conservation of resources
EFA  exploratory factor analysis
ERI  effort-reward imbalance
GAS  General Adaptation Syndrome
HR  human resources
JD-R  job demands-resources
JSM  Job Strain Model
ML  maximum likelihood
MVA  Missing Value Analysis
NPM  new public management
OCB  organisational citizenship behaviour
OCB-I  organisational citizenship behaviours directed at other individuals
OCB-O  organisational citizenship behaviours directed at the organisation
POS  perceived organisational support
UK  United Kingdom
US  United States
Chapter One: Introduction

1.1 Statement of the Problem

Research and practice in the occupational health and wellbeing domain have long recognised the diverse and far-reaching impact of prolonged job stress. Job stress can be referred to as the harmful physical and emotional responses that occur when the requirements of the job do not match the capabilities, resources, or needs of the worker (National Institute for Occupational Safety and Health, 1999). Studies have consistently reported a wide range of ill effects associated with chronic stress at work, including poor physical health (Waters & Ussery, 2007), poor psychological health (Hausser, Mojzisch, Niesel, & Schulz-Hardt, 2010), rising alcohol and other drug misuse (Levi, 1996) and job dissatisfaction (Fox, Dwyer, & Ganster, 1993). Ongoing job stress has also been linked to a range of negative social outcomes, such as poorer work-life balance (Kalleberg, 2008), withdrawal from family and spouse (Burke, Weir, & Duwors, 1980), serious relationship breakdown such as separation or divorce, and even suicide (Hackett & Violanti, 2003).

Heightened levels of job stress are a relatively common experience for workers. In the mid-2000s, it was estimated that one in every three employees in the European Union was severely affected by unmanaged stress at work (Ivanov, 2005). A more recent and comparable figure comes from the United Kingdom (UK), where a national survey reported that approximately 30 per cent of workers believed themselves to be suffering from stress-related illnesses (including depression and anxiety), and that these illnesses had been caused or made worse by their current or
past work (Health and Safety Executive, 2011). In Australia, 10 per cent of the surveyed working population were found to experience a work-related mental health disorder, and 12 per cent of these individuals reported high to very high levels of psychological distress (Australian Safety and Compensation Council, 2006). These studies clearly indicate that the wide-ranging effects of work stress are not confined to a small group of occupations or workplaces, but instead are affecting the lives of a large proportion of the working population.

The problematic nature of prolonged job stress is also reflected in the increasingly large financial burdens borne by individual organisations and national economies (Cooper, Liukkonen, & Cartwright, 1996; Cynkar, 2007; DeFrank & Ivancevich, 1998; Ganster, Fox, & Dwyer, 2001; Riga, 2006; Wallace, Edwards, Arnold, Frazier, & Finch, 2009). Recently, it was estimated that job stress cost Australian workplaces almost 26 billion dollars annually (EconTech, 2008). In Europe, more than 20 billion Euros were invested in initiatives aimed at addressing stress-induced symptoms (European Agency for Safety and Health at Work, 2009). Research also shows that these costs are not abating. For example, the costs of employee stress to businesses in the United States (US) has doubled from 150 billion dollars in 1990 (Sauter, Murphy, & Hurrell Jr, 1990) to 300 billion dollars in 2007 (Cynkar, 2007). The spiralling costs associated with stress in the workplace highlight that chronic job stress represents a serious and ongoing problem for employees, the business community and national economies (Richardson & Rothstein, 2008).

One of the commonly cited explanations for the rising costs of job stress is the general reluctance of organisations to address the psychosocial conditions
contributing to employee stress (Comcare, 2008; Flood, 2005; Richardson & Rothstein, 2008). Psychosocial working conditions can be defined as the aspects of work design and their social and organisational contexts (Comcare, 2008). Despite the strong support for comprehensive stress prevention programmes that simultaneously address the work-based sources of job stress while enhancing employees’ coping capacities, firms are far more likely to invest in strategies to help workers cope with a stressful workplace (e.g., through cognitive behavioural therapy, relaxation training and lifestyle-oriented employee wellbeing programmes) than to take steps to prevent or reduce the organisational sources of employee stress (Comcare, 2008; Murphy & Sauter, 2003; Richardson & Rothstein, 2008). This approach appears to be more prevalent in countries in which health and safety legislation does not emphasise the importance of psychosocial working conditions, such as in Australia and the US (Murphy & Sauter, 2003). The tendency to focus on workers rather than workplaces is corroborated to some extent by the job stress literature itself. The vast majority of job stress research has focused on the relationship between working conditions and health and attitudinal outcomes (e.g., Cooper, Dewe, & O'Driscoll, 2000; Hausser et al., 2010; Jex, Cunningham, De La Rosa, & Broadfoot, 2006), and there is generally a lack of information on how potential sources of stress contribute to more business-specific measures such as employee performance, customer satisfaction and company productivity (Eatough, Chang, Miloslavic, & Johnson, 2011; Edwards, Guppy, & Cockerton, 2007; Hunter & Thatcher, 2007; Jex, 1998; Sullivan & Bhagat, 1992). One of the reasons for very little stress research with performance as an outcome measure is perhaps the conflicting results this research has produced (Schreurs, Van Emmerik, Gunter, & Germey, 2012), particularly between laboratory-based and field studies. The lack of
information on the relationship between the conditions that contribute to job stress and commonly-used measures of organisational effectiveness, such as employee performance, makes it difficult for programme advocates to use these more productivity-oriented outcomes as an incentive for organisations to focus on the work-based sources of job stress (Comcare, 2008).

Examining the relationships between job stressors and employee performance may not only help strengthen the case for addressing the organisational sources of job stress. Investigating these relationships may also shed light on how working conditions need to be managed to prevent or reduce stress-related performance decrements. Currently, there is considerable uncertainty regarding the nature of the relationships between stressors and worker performance (Jex et al., 2006; Schreurs et al., 2012). In particular, there is limited information about whether these relationships follow linear or nonlinear pathways, or whether the influence of job stressors is additive or interactive. In terms of linear versus nonlinear relationships, a number of stress-related theories, such as the Yerkes-Dodson theory (Yerkes & Dodson, 1908) and activation theory (Gardner, 1986; Gardner & Cummings, 1988), suggest that the relationships between stressors and performance are nonlinear. However, in the small amount of research that has examined stressor-performance relationships, a direct linear association has been assumed (Rydstedt, Ferrie, & Head, 2006). Similarly, stressor-performance research has generally overlooked the possibility that resource-oriented working conditions (e.g., job control) may buffer the adverse effects of work-based demands (e.g., workload) on employee performance (as per Karasek’s original demand-control model) (Sliter, Sliter, & Jex, 2012; Smith, Rasmussen, Mills, Wefald, & Downey, 2012).
Another aspect of stressor-performance research that requires further attention is how stressors impact on different types of employee performance. According to previous research (Katz & Kahn, 1978; MacKenzie, Podsakoff, & Ahearne, 1998; Williams & Anderson, 1991), job performance consists of a combination of role-based behaviour (i.e., behaviour that addresses the contractual job requirements) and extra-role behaviour (i.e., behaviour that goes above and beyond mandated obligations, but contributes to the overall effectiveness of the organisation). Although both forms of worker performance are crucial to organisational functioning, there are indications that employees have difficulty maintaining the two performance types simultaneously when experiencing stressful circumstances (Allen & Rush, 1998; Bergeron, 2007; Eatough et al., 2011; Organ, 1988). This research suggests that, in the face of unmanaged stress, employees are more likely to reduce discretionary work input to avoid the more serious repercussions associated with neglecting prescribed performance. Also, consistent with resource-based theories such as the conservation of resources theory (Hobfoll, 1998) and social exchange theory (Blau, 1964), unique links between resourceful stress-related working conditions (e.g., job control, social support and perceptions of fairness) and different performance types have been hypothesised (Cropanzano, Rupp, Mohler, & Schminke, 2001b; Konovsky & Pugh, 1994). The central tenet of these hypotheses is that work-based resources and performance measures may be differentially matched based on the exchange relationships in which these variables operate. Despite the potential for differential relationships between stress-related working conditions and performance measures, multiple measures of performance are rarely included in stress research, and hence there is a lack of empirical evidence to support these propositions.
A final limitation of existing stressor-performance research is that most studies have been based on cross-sectional research designs (e.g., Dwyer & Fox, 2006; Snape & Redman, 2010; Wallace et al., 2009). A cross-sectional study collects data at a single point in time, therefore enabling researchers to make inferences about possible relationships between variables under investigation and to gather preliminary data to support further research. While this research has provided important preliminary evidence of the stressors-performance relationship, the stability of the relationship cannot be confirmed until they are examined over time (Zapf, Dormann, & Frese, 1996). Longitudinal research is therefore needed to investigate if and how the stressor-performance relationship changes over an extended period of time.

1.2 Research Aims

The overall goal of the current investigation is to address the lack of research examining the stressor-performance relationship. More specifically, the current investigation will explore the relationships between common sources of job stress and multiple forms of employee performance behaviours. The strength and nature of these relationships will be assessed through tests for direct linear, curvilinear and interaction-based associations. The research will be undertaken in a law enforcement context, and will consist of two studies. Study 1 will assess stressor-performance relationships within a cross-sectional design, while Study 2 will be based on a longitudinal research design that aims to assess the stability of these relationships over 17 months.

A conceptual framework consisting of two theoretical models will guide the current investigation. The first model is the Job Strain Model (JSM) that comprises
three influential work design features: job demands, job control and social support (Karasek, 1979; Karasek & Theorell, 1990). The second model is an organisational justice model (Colquitt, 2001) incorporating key justice measures that address fair rewards (distributive justice), fair reward decision procedures (procedural justice), fair interpersonal treatment during reward allocations (interpersonal justice) and fair distribution of information relating to reward decisions (informational justice).

The decision to focus on the conditions included in the JSM and justice models was based on contextual, theoretical and empirical grounds. In relation to context, there have been calls in the literature for job stress research to be underpinned by models that are specific to the study context (e.g., Beehr, 2000; McClenahan, Giles, & Mallett, 2007; Sparks & Cooper, 1999; Tennant, 2001). Therefore, an important consideration for the current investigation was how closely the JSM and justice models reflect the working conditions typically experienced in policing. As will be discussed in more detail throughout Chapter 2, both the JSM and dimensions of organisational justice are especially relevant to the needs and circumstances of policing personnel, particularly when considering the impact of large-scale public sector reforms and the introduction of more community-oriented styles of policing (Deschamps, Paganon-Badinier, Marchand, & Merle, 2003). The reforms have had lasting effects on the social and organisational environments in which policing personnel work, and key elements of these effects are captured by the JSM and organisational justice theory. Research examining policing personnel working in environments characterised by new public sector management reforms reports negative associations between various justice measures and the psychological wellbeing and job satisfaction of personnel (Noblet, Rodwell, & Allisey, 2009a; Noblet & Rodwell, 2009a; Noblet, Rodwell, & Allisey, 2009b).
When coupled with research indicating that police officers face a higher intensity of work, less control and less contact with superiors (Beltran, Moreno, Estrada, Lopez, & Rodriguez, 2009; Butterfield, Edwards, & Woodall, 2005), these findings point towards a close fit between the chosen study models and the study context. Importantly, this level of fit will help maximise opportunities for identifying job conditions that are particularly relevant to the performance behaviours of study participants.

There are also strong conceptual reasons for utilising a combined JSM-justice framework in the current investigation. The JSM is consistent with the transactional approach to studying stress. The transactional model is regarded as a much more accurate assessment of how the stress process occurs and what conditions need to be taken into account when identifying the work-based predictors of employees’ stress-induced outcomes (Cooper et al., 2000). In particular, the transactional approach has consistently identified the components of the JSM as playing key roles in the stress process (Humphrey, Nahrgang, & Morgeson, 2007). In addition, resource-based job stress theories that extend the transactional approach, including the conservation of resources (COR) theory (Hobfoll, 1998) and the job demands-resources (JD-R) theory (Demerouti, Bakker, Nachreiner, & Schaufeli, 2001), will be used to assess the mechanisms through which the JSM and the dimensions of justice can influence stress-related performance fluctuations. Linking the resource-based theories with the JSM and organisational justice theories is considered theoretically appropriate given that the JSM and organisational justice contain dimensions that represent important external resources. The hypothesis of the JSM imply that the possibility of job control and social support making valuable contributions to desirable employee outcomes such as performance may not only be
a result of their stress buffering capacities, but may also be because they are important work-based resources (i.e., skill discretion, feedback, assistance) that employees require in order to complete designated work roles (Burke & Richardsen, 1993). Drawing on the COR theory and the JD-R theory, organisational justice can be regarded as an important work-based resource in much the same way as can job control and social support. The availability of justice-oriented resources enables employees to perform job functions to the required standard, and the loss of these resources may prevent employees from successfully completing work tasks. For example, stress associated with unfavourable reward allocation decisions (i.e., distributive injustice) can be offset by high levels of procedural, interpersonal and/or informational justice (Cropanzano, Prehar, & Chen, 2002; Tekleab, Takeuchi, & Taylor, 2005). At the same time, fair treatment can serve a more functional purpose by helping employees to clarify important work goals, minimise uncertainty regarding expectations and help identify relevant training and development opportunities (Cropanzano et al., 2002; Tekleab et al., 2005). The conceptual parallels between the JSM and the resource-based theories suggest that using a combined JSM-justice framework in the current investigation can help identify a broader range of resources that are influential in the stress experienced by individuals in the workplace.

The final reason for deciding to focus on the conditions represented in the JSM and justice models relates to the strong predictive capacity of both models. In terms of the JSM, this model incorporates three key stress-related working conditions—job demands, job control and social support—that are ubiquitous to any working environment, regardless of the industry or occupations involved (Karasek & Theorell, 1990). These conditions have been found to be strong predictors of a range
of stress-related outcomes at work, such as health, satisfaction, intention to leave and organisational commitment, and, as a result, the JSM is regarded as one of the most dominant job stress models in the field of occupational health psychology (de Jonge & Kompier, 1997; de Lange, Taris, Kompier, Houtman, & Bongers, 2004; Hausser et al., 2010). In comparison to the JSM, which has figured prominently in the job stress literature since its inception over three decades ago, organisational justice has only recently been examined as a potential contributor to job stress (Elovainio et al., 2005; Inoue et al., 2010; Kivimaki et al., 2005). Nevertheless, the results of this research strongly indicate that employees’ perceptions of fairness can capture substantial portions of explained variance in stress-related health outcomes above and beyond the more established stressors, such as those represented in the JSM (Elovainio, Kivimaki, Steen, & Vahtera, 2004; Lindfors, Heponiemi, Leino, & Elovainio, 2009; Ylipaavalniemi et al., 2005). The empirical findings from the JSM and stress-related justice research suggest that using both models in the current investigation may maximise the opportunities for identifying significant stressor-performance relationships.

Two general types of performance behaviours will be examined in the current investigation: task-based behaviour and non-task-based citizenship behaviour. Separating task-based and non-task-based performance behaviours will help clarify whether the JSM and justice variables have differential relationships with these performance types (Cropanzano et al., 2001b; Organ, 1988). The current investigation will refer to social exchange theory (Blau, 1964) with particular reference to the reciprocity rule (Gouldner, 1960) to hypothesise the differential relationships resource-oriented working conditions including job control, social support and organisational justice may have with employee performance. Blau’s
(1964) social exchange framework has been chosen for this investigation because the theory offers a distinction between an economic transaction and a social transaction. This distinction suggests that in an economic transaction, employees contribute task-based behaviour in exchange for economic resources contractually agreed to them. One of these economic resources is likely to be job control, given that decision-making control is often closely tied to a person’s position on the organisation hierarchy (French & Raven, 1959; Jex, 1998; Karasek & Theorell, 1990). Conversely, it is possible to hypothesise that employees contribute extra-role behaviour in return for relationship-based resources such as social support or fair interpersonal treatments. In this regard, employees are thought to be in a social transaction. The separation between economic and social transactions of social exchange theory provides the theoretical grounds for examining the differential relationships between psychosocial working conditions and different performance measures in the current investigation.

Consistent with the goal of exploring how prominent working conditions are associated with performance behaviours, the current study will examine the main, interaction and curvilinear effects of job demands, job control, social support and justice perceptions on multiple performance types. As mentioned earlier, testing for differential main effects of job control, social support and justice perceptions in particular will be guided by the assumptions of resource-based theories (Demerouti et al., 2001; Hobfoll, 1998) and theories of exchange (Blau, 1964) and reciprocity (Gouldner, 1960). The JSM interaction hypothesis will inform the tests for interactions among the JSM variables, whereas interactions among the justice measures will be based on the fair-process hypothesis (Colquitt, 2001). Finally, the curvilinear relationships will be assessed, both to test the possibility that the effects
of working conditions may be attenuated at low and/or high levels (Warr, 1987), and to prevent spurious interactions among the independent variables (Fletcher & Jones, 1993).

The current investigation will be based on a sample of Australian-based police officers. There are a number of reasons for selecting this particular sample. Research focusing on the impact of job stress has found that levels of stress are influenced by the industry or sector in which people work, with the majority of job types facing the highest risks of stress being in the human services (Cherniss, 1980; Greenglass & Burke, 2003; Griffiths, Randall, Santos, & Cox, 2003; Karasek & Theorell, 1990; Shane, 2010; Violanti & Aron, 1993). One of these human-service professions is policing, which has often been identified as a high-stress occupation (e.g., Bourbonnais, Jauvin, Dussault, & Vezina, 2007; Brown & Campbell, 1994; Shane, 2010; Violanti & Aron, 1993; Yarmey, 1990). Policing is also an occupational context in which organisational conditions, such as job demands and perceptions of fairness, have been found to be closely linked with stress-related outcomes (Farmer, Beehr, & Love, 2003; Hall, Dollard, Tuckey, Winefield, & Thompson, 2010; Lambert et al., 2010; Stetz, Stetz, & Bliese, 2006). It is therefore expected that this environment will maximise the opportunity for identifying the stress-induced performance fluctuations in the current investigation. The other reason for focusing on policing is that law enforcement officers are regarded in stress research as a population ‘in need’ (e.g., Bourbonnais et al., 2007; Shane, 2010; Simons & Barone, 1994). The findings from the current study could therefore help law enforcement agencies identify strategies for preventing or reducing job stress, and improve the overall employee outcomes in this occupational context. In light of the parallels with other human-service professions, particularly those based in public sector agencies
operating within a new public management reform context, the findings from this study may also have broader implications for other state-funded human-service groups.

1.3 Importance of Research

The present study aims to make five important contributions to the job performance, job stress and human-service literatures. First and foremost, the proposed research will provide much-needed information on the relationship between stress-related working conditions and multiple measures of employee performance behaviours. When combined with subsequent stressor-performance research, the current study can help identify those working conditions that need to be addressed to prevent/reduce stress-related performance decrements. Research has shown that adverse working conditions are closely associated with health and attitudinal outcomes, and these associations are costly to individual employees, the workplace and national economies (Hart & Cotton, 2003; Riga, 2006; Wallace et al., 2009). Despite the rising costs of stress and the strong effects of psychosocial working conditions, organisations are still more likely to focus on individual employees and their coping capacities, rather than on addressing the organisational sources of job stress (Caulfield, Chang, Dollard, & Eishaugh, 2004; Giga, Noblet, Faragher, & Cooper, 2003; Murta, Sanderson, & Oldenberg, 2007). One method by which organisations can be encouraged to voluntarily adopt a more comprehensive approach to stress prevention/reduction is through a better understanding of the performance implications associated with job stressors (Bevan, 2010). The performance of employees has an immediate and often very discernible influence on organisational performance, especially in the human services, where the
effectiveness of personnel is heavily dependent on the energy and drive of employees themselves (Perry & Wise, 1990). As one of the critical roles of managers is to continually monitor employee performance, evidence of stress-induced performance fluctuations could be used to strengthen the business case for addressing both the sources and symptoms of job stress. Research indicates that stress prevention interventions are more likely to be effective when they take into account both the worker and the workplace (Richardson & Rothstein, 2008). A line of research that examines the performance fluctuations associated with stress-related working conditions could therefore play a key role in shifting the emphasis away from individual employees, to the conditions in which employees work.

The second contribution of the current investigation is to clarify limited stressor-performance literature by employing a longitudinal research design. One of the most important reasons for the lack of clarity regarding the stressor-performance relationship is the heavy reliance on cross-sectional data. Although past cross-sectional studies have contributed significantly to our current understanding of the relationship, these studies have several disadvantages. Cross-sectional research cannot clearly confirm the stability of the observed relationships, or provide evidence about the timeframes over which chronic stress may impact on employee health and performance (Frese & Zapf, 1988). Further, a cross-sectional design does not aid in reducing common method variance, or in ruling out third variable explanations for the relationships in question (Tucker et al., 2008; Wright & Cropanzano, 2000; Zapf et al., 1996). These shortcomings point towards the need for longitudinal research in verifying the stability of results across time. Despite the clear need for prospective longitudinal job stress research, a careful search of peer-reviewed journals from the past 20 years has returned fewer than 20 longitudinal
field studies examining the impact of stress-related job conditions on performance measures (e.g., Bond & Flaxman, 2006; Greenberger, Strasser, Cummings, & Dunham, 1989; Nagami, Tsutsumi, Tsuchiya, & Morimoto, 2010; Wynn-Jones, Buck, Varnava, Phillips, & Main, 2011). The lack of studies focusing on the stability of stress-related effects over time has led the current investigation to employ a longitudinal research design. More specifically, the present investigation will be a combination of cross-sectional and longitudinal research to help determine if associations between variables under investigation are synchronous or lagged (cf., Sonnentag & Frese, 2003). When combined with previous research, the current study can help clarify the relationships between stress-related working conditions and job performance behaviours, and can help explain the temporal effects of these working conditions over an extended period.

The third contribution of the current investigation involves clarifying whether certain types of performance behaviours are more vulnerable to job stressors. The current investigation will include two forms of worker performance, task performance behaviour and organisational citizenship behaviour (OCB). The findings will extend current stressor-performance research, which has typically focused on task performance and has rarely examined different performance types in the same investigation (Bakker, Demerouti, & Verbeke, 2004; Eatough et al., 2011; Jex et al., 2006; Sliter et al., 2012). By incorporating multiple performance types in the one study, this research can provide a more accurate insight into how the impact of stress-related working conditions may vary according to the type of performance in question. These working conditions will include the traditional JSM variables (workload demands, job control and social support) and organisational justice. In particular, focusing on workload will help clarify inconsistent results in relation to
its relationship with performance (Eatough et al., 2011; Gilboa, Shirom, Fried, & Cooper, 2008). Including organisational justice, which have been regarded as a new psychosocial predictor of stress-induced outcomes (Elovainio, Kivimaki, & Helkama, 2001), will also contribute to the stressor-performance literature given the lack of information on the relationships between justice as a stress-related working condition and worker performance.

The fourth contribution of the current investigation involves the comprehensive manner in which the stressor-performance relationship will be examined. Much of the existing research in this area has assumed a direct, linear pathway between job stressors and performance in which performance decrements are proportional to the intensity of the stressor under investigation (van der Doef & Maes, 1999). However, there are strong indications that interaction and nonlinear effects may be involved (Rydstedt et al., 2006). While testing for interaction effects could detect conditions under which a relationship is modified, the tests for nonlinear effects could identify the points in the relationship at which the relationship is optimised. Findings from the tests for the direct, interaction and nonlinear effects associated with potential job stressors will assist in identifying the specific circumstances in which working conditions may undermine or enhance employee performance. A more detailed understanding of these circumstances may then inform the development of more effective stress-management strategies. For example, findings that interactions between job control and workload are positively associated with employee performance may encourage management to monitor the workloads of individual employees more closely and to ensure that these are matched by commensurate levels of skill discretion and decision-making input (Aittomaki, Lahelma, Rahkonen, Leino-Arjas, & Martikainen, 2008). If curvilinear
relationships are dominant, firms could use the literature on eustress/distress (Selye, 1974; Yerkes & Dodson, 1908) to help identify levels of stress that could optimise levels of desirable outcomes. If linear relationships are found between working conditions and job performance, supervisors and managers could implement a more generalised ‘population’ approach to managing stress, focusing on positioning stress-related working conditions at mean levels (Mackay, Cousins, Kelly, Lee, & McCaig, 2004). A more detailed understanding of the nature of the relationships between work stressors and performance behaviours would be useful overall in helping organisations and relevant peak bodies (e.g., workplace health and safety authorities) develop better informed approaches to managing psychosocial working conditions.

Finally, the current investigation will make specific contributions to the police stress literature and to the management of law enforcement personnel. Testing for various relationships such as curvilinearity and interactions longitudinally will help extend existing law enforcement stress research, which is largely informed by cross-sectional design and direct linear hypotheses (e.g., Bourbonnais, Malenfant, Vezina, Jauvin, & Brisson, 2005; Franke et al., 2010; Martinussen, Richardsen, & Burke, 2007). Focusing on key generic stressors will also contribute significantly to managing stress in the law enforcement context. Psychosocial working conditions are amenable to change (e.g., DeJoy, Wilson, Vandenberg, McGrath-Higgins, & Griffin-Blake, 2010; Karasek & Theorell, 1990; Sauter et al., 1990), and if organisational variables are found to be closely associated with performance in the current investigation, interventions can be developed to modify these conditions. As a result, the current investigation may help provide a better understanding of the working conditions that need to be addressed to improve performance outcomes for
police. Further, the focus on various performance types will expand police stress research, which has typically investigated organisational stressors on health and wellbeing outcomes (e.g., Adams & Buck, 2010; Franke et al., 2010; Hall et al., 2010), or concentrated almost exclusively on in-role performance behaviour (e.g., Armeli, Eisenberger, Fasolo, & Lynch, 1998; Bartol, Bergen, Volckens, & Knoras, 1992; Shane, 2010). The findings from this research will also have increased relevance for contemporary state-funded law enforcement agencies, which are vulnerable to heightened job demands, diminished job control and inadequate support as a result of modern public sector management techniques (e.g., Buker & Wiecko, 2007; Butterfield et al., 2005; Coyle-Shapiro & Kessler, 2000). Finally, the link between law enforcement and other publicly funded human services such as social work, health care and education means that the current research results could have relevance to the broader human-service sector.

1.4 Overview of Research

The present investigation will be divided into two studies that are based on survey data collected at Time 1 and Time 2, and have been separated by a 17-month time lag. Study 1 is a cross-sectional study and the data collected at Time 1 will be used. The main aim of Study 1 is to identify the key stress-related working conditions associated with each performance type, and to assess how unique each relationship might be. By testing for curvilinear and interaction effects in addition to linear effects, Study 1 will also provide important information regarding the complexity of these relationships.

Although Study 1 will help identify relationships between stress-related job conditions and in-role and extra-role performance behaviours, the study will not
specify if and how these relationships remain stable over time. To this end, Study 2 that will be based on data collected at Times 1 and 2 will help clarify whether there are any continuing effects associated with these job conditions. Study 2 will examine the relationships between working conditions at Time 1 and performance outcomes at Time 2, while accounting for the effects of outcomes at Time 1. The results of Studies 1 and 2 will be discussed separately in Chapters 3 and 4, respectively. A discussion focusing on the overall findings and implications will be provided in the final chapter, Chapter 5.

1.5 Publications

This thesis incorporates two published papers produced during the author’s PhD candidacy. The papers contributed directly to the aims identified in the thesis and supported the overall findings. These papers are:


The author and co-authors have also submitted a paper based on the longitudinal study of the current thesis to the journal, Human Performance. This journal paper is currently under revision for resubmission to the journal. Details are as follows:
Maharee-Lawler, S., Noblet, A. & Rodwell, J. ‘The longitudinal relationships between job demands, work-based resources, and task and citizenship performance’.
Chapter Two: Background Literature and Propositions

In the following chapter, a comprehensive review of three fields of study will be undertaken. These fields are job stress, organisational justice theories and employee performance. The findings of the review will be used to recognise current knowledge relating to the stressor-performance relationship, identify limitations in this research and inform the hypotheses to be tested in the current investigation.

The chapter is divided into five sections. The first section, Section 2.1, provides the background to the current investigation. The section begins with a discussion about why there is a need to examine employee performance in stress research, and to clarify the aim of the current investigation. The costs and sources of occupational stress, particularly in relation to the current investigation context, law enforcement, are highlighted to support the importance of the current topic. The section continues by presenting a case as to why it is more appropriate to investigate chronic organisational stressors such as employee workloads or decision making influence than examining stressors specific to policing operational tasks such as attending accident scenes, despite the latter being the norm in police stress research. Among many chronic stressors that can influence employee outcomes, four stress-related working conditions are selected for investigation. These conditions are job demands, job control, social support and justice perceptions. The relevance of the chosen working conditions to the policing context, particularly the context influenced by new public sector management reforms, is then discussed to provide
the reasons for targeting these conditions rather than other organisational sources of job stress.

Sections 2.2 and 2.3 outline the theories and conceptual models that serve as the framework for the overall thesis. Section 2.2 presents the primary stress model for the current investigation: the Job Strain Model (JSM). This section reviews the additive and synergistic hypotheses of the two-dimensional JSM, which comprises job demands and job control, and the three-dimensional JSM, which also includes social support. The empirical, contextual and theoretical reasons for adopting the JSM to assess the relationships between key stress-related working conditions and employee performance behaviours are provided to explain why this model was deemed suitable for the current investigation.

Section 2.3 discusses the second stress framework of the study: the multidimensional organisational justice model. Similar to Section 2.2, an examination of the empirical, contextual and theoretical relevance of the model will be conducted to assess the suitability of justice theory for the current investigation. The review of the empirical relevance will be based largely on recent studies that have employed a combined stress-justice framework, to establish whether the justice model can be used alongside the JSM in the current project. The section also includes a review of the propositions provided by resource-based theories such as the conservation of resources (COR) theory and social exchange theory. The aim of discussing these theories is to determine how framing justice measures alongside job control and social support may help clarify the unique relationships between stress-related working conditions and job performance.
In the fourth section, Section 2.4, a review of existing research involving the relationship between working conditions identified in the JSM and justice theories and employee performance is undertaken. The aim of this review is to determine the key areas for further investigation by the current study. These areas include differentiating between multiple performance measures, testing for a variety of the stressor-performance relationships and using a longitudinal research design.

The final section, Section 2.5, brings the chapter to a close with an outline of the key aims and specific hypotheses of the present study based on the literature review in the previous four sections. The aims are largely formed in response to the gaps discussed in Section 2.4. The study hypotheses are formulated to test the additive, interaction and curvilinear relationships between the JSM and justice variables and employee performance variables cross-sectionally and longitudinally. The method, results and interpretation of results of hypothesis testing will be discussed in subsequent chapters.

Before commencing a discussion of the relevant job stress, organisational justice theories and employee performance literature, it is important to clarify a number of terms used throughout this thesis. In-role (or task-based) behaviours and organisational citizenship behaviours (OCBs) are the main set of productive behaviours that represent performance behaviours at work (also referred to as ‘job performance’, ‘employee performance’, or simply ‘performance’ throughout the thesis). ‘Stress’ refers to a demanding experience that could be positive when the level of pressure is optimal (i.e., eustress), or could have a negative association with elements of fear, dread, anxiety, irritation, annoyance, anger, sadness, grief and/or depression when the level of demand is excessive (i.e., distress) (Selye, 1974).
Although stress could elicit both positive and negative reactions, the term ‘stress’ is commonly used to describe the negative emotional experience, and the current thesis follows this tradition unless specified otherwise. The term ‘stressors’ refers to sources of stress, and these are defined as components of the environment that are experienced and perceived as demands that would elicit negative reactions (Beehr, Jex, Stacy, & Murray, 2000; Jex, 1998). Stress can be further differentiated into acute and chronic forms. Stress is classified as acute when the experience involves distressing and often dangerous incidents such as being involved in a car accident or witnessing a violent crime. Conversely, stress is said to be chronic when individuals experience stressful encounters that are ongoing, such as long working hours, or operating within autocratic decision-making systems (Frey, 2008). Consequently, variables in the psychosocial work environment that are encountered on a daily basis and contribute to job stress are chronic stressors, and factors that are perceived as immediate and serious threats are acute stressors (Beehr et al., 2000). Another term often used in the job stress literature is ‘strains’, which captures the multitude of negative outcomes employees experience when faced with stressors (Payne, Jabri, & Pearson, 1988).

People spend a large proportion of their adult lives at work and, as a result of this ongoing exposure to working environments, the social and organisational conditions encountered at work are regarded as key sources of chronic stress (Karasek & Theorell, 1990; Taylor, 2009). The long-term impact of work-based stressors has detrimental effects on employee health and wellbeing, as well as on their ability to perform their work roles (Bond & Bunce, 2001; Bond & Flaxman, 2006). However, research on the impact of job stressors on employee performance has been limited in comparison to other health and attitudinal outcomes. The first
section of this chapter, Section 2.1, outlines the rationale for focusing more attention on clarifying the stressor-performance relationship. This section will also assess the relevance of stress to the occupational group taking part in the current investigation, policing personnel, and by examining salient features of the study context, key sources of stress to be examined will be identified.

2.1 Background to the Current Investigation

The current section consists of four main parts. The first part of the section will review the role of employee performance in organisational effectiveness and will argue that research aiming to identify conditions that may undermine or enhance employee performance can help guide the development of less stressful and more productive working environments. The second part of this section will outline the costs of job stress borne by individual employees, organisations and the wider economy, and will recognise the importance of focusing on the work-based sources of stress. More specifically, the costs of job stress in policing will be highlighted to emphasise the high-stress environment in which officers work, which has led the current project to regard policing as particularly suitable for identifying the impact of chronic stressors on employee outcomes.

The third and fourth parts of Section 2.1 will review topics relating to occupational stress in the state-funded police agencies. The purpose of this review is to provide contextual reasons for selecting key stressors of the current investigation. The review will argue that focusing on components of the JSM (job demands, job control and social support) and justice theories in the current investigation is particularly fitting for three reasons. First, these stressors are commonly found in the workplace, including in service-based organisations such as the police (Brough,
2005). Second, there are strong indications that the impact of these stressors has been amplified by public sector reforms that aim to introduce private-sector management practices into state-funded agencies, including law enforcement. The hallmarks of these reforms—a heightened emphasis on restricting costs, increasing efficiency and maximising service effectiveness—have particularly significant implications for the conditions represented in the JSM-justice framework, and are thought to strengthen the influence of these variables (Deschamps et al., 2003). Finally, the JSM-justice variables are more easily modifiable in the organisational setting, hence investigating these variables presents valuable opportunities for firms to develop stress prevention strategies (DeJoy et al., 2010; Karasek & Theorell, 1990; Sauter et al., 1990).

2.1.1 The importance of examining employee performance in job stress research.

Organisations need employee performance output to survive, succeed and grow (Katz & Kahn, 1978; Sullivan & Bhagat, 1992). Numerous empirical studies have reported that employees’ task-based and non-task-based behaviours make valuable contributions to organisational achievements (e.g., Borman, 2004; Podsakoff, Whiting, Podsakoff, & Blume, 2009; Podsakoff, MacKenzie, Paine, & Bachrach, 2000). This research suggests that employee performance is critical to the functioning of organisations, and that even a small number of underperforming employees can impact on the future prosperity of the organisation, regardless of sectors involved. To private for-profit companies, employee performance signifies monetary value to their employer. Deficiencies in the quality or quantity of employee performance not only prevent organisations from achieving operational profit, but may also result in the closure of firms (Fitz-enz, 2009). For the public
sector, employee performance has implications for both the functioning of organisations themselves and for that of the communities they serve. Without efficient and effective service from public sector agencies (and by extension, from civil servants themselves), there is a risk that communities will be denied the level of service required to achieve appropriate standards of health, education, transport, law enforcement and other critical public resources (Porta, Lopez-de-Silanes, Shleifer, & Vishny, 1999).

The close links between employee contribution and organisational effectiveness has led to research investigating factors that could influence worker performance. One issue that is thought to have a large impact on an employee’s ability to carry out everyday tasks is job stress (Cotton & Hart, 2003; Hart & Cooper, 2001; Jex, 1998; Wright & Cropanzano, 2000), in particular, stress originating from psychosocial and/or organisational characteristics (Aust & Ducki, 2004; Byron, Khazanchi, & Nazarian, 2010; Feuerhahn, Kuhnel, & Kudielka, 2012; Murphy & Jackson, 1999; Ohly & Fritz, 2010; Webster, Beehr, & Christiansen, 2010). Prolonged, unmanaged job stress can result in heavy costs for employees, organisations and for the economy as a whole (see Section 2.1.2 for a more thorough review of the costs of stress). Given that employee performance is directly linked with the very existence of organisations, the ability to identify and reduce the harmful effects of job stress on performance could give organisations the type of information they need to make well-informed performance-related decisions. A thorough knowledge of the relationship between stress and performance would also provide more incentive for firms to address the organisational sources of stress, which need to be modified to prevent/reduce stress-related performance decrements and potentially reduce the costs of stress overall.
Despite the value of information on the relationship between stress-related working conditions and performance outcomes, the literature on this topic is underdeveloped (Schreurs et al., 2012). One of the key limitations of existing job stress research is that authors have rarely included measures of employee performance, especially when compared to health and wellbeing outcomes (Eatough et al., 2011; Jex, 1998; Jex et al., 2006). Therefore, little is known about the nature of the relationships between potentially stressful working conditions and employee performance, particularly the extra-role type (Bakker et al., 2004; Jex et al., 2006; Sliter et al., 2012). Another key limitation of the stressor-performance research is the lack of consistent evidence linking stress and multiple performance outcomes over long periods of time (for example, more than one year) (Nagami et al., 2010; Wynn-Jones et al., 2011). With this research being dominated by cross-sectional studies, it is difficult to know if and how psychosocial stressors impact on employee performance behaviours over time.

The lack of clear evidence of the nature of the associations between stress-related working conditions and employee performance has important implications for research and practice. From the research perspective, developing a more accurate understanding of the full impact of job stress is difficult when the relationship between job stressors and employee performance remains unclear (Jex, 1998). From the practical viewpoint, insufficient evidence of the potentially negative influence of stressors on job performance could result in management neglecting to view stress as a serious threat to organisational functioning. There has been a concern that employers generally do not pay due attention to job stressors or the work-based factors that give rise to employee stress (DeFrank & Ivancevich, 1998; Wakeling, 2010). This concern is supported by research indicating that only one in three
organisations have stress interventions in place (Chenoweth, 2011). Measures for preventing/reducing stress at work that have been adopted successfully include designing quality jobs that provide employers with higher levels of involvement in decision making (Coats & Lehki, 2008). However, organisations that implement these measures are still in the minority (Bevan, 2010). Stress management programmes are much more likely to focus on the individuals exhibiting symptoms of stress, rather than on the underlying organisation-based sources of stress (e.g., Caulfield et al., 2004; Giga et al., 2003; Murta et al., 2007).

The view that job stress is a problem for individual workers rather than the organisation is thought to contribute to a lack of recognition and attention being given to those working conditions that compromise the psychological wellbeing of employees (Comcare, 2008; DeFrank & Ivancevich, 1998; Murphy & Sauter, 2003). To raise the awareness and encourage action for preventing/reducing workplace stress, it is therefore important to build a strong ‘business case’ for addressing the organisation-based sources of stress (Bevan, 2010). In this context, the business case refers to the economic, operational and/or strategic justification for adopting certain policies, practices or systems with regards to job stress and employee wellbeing. If management understood the relationship between stress-related working conditions and the performance of their employees, they may be more motivated to alter those conditions to promote higher levels of performance. With this in mind, research examining the stressor-performance relationship can provide senior personnel with a broader and more comprehensive understanding of the extent to which stressful working conditions represent a threat to organisational effectiveness. Moreover, studies demonstrating a strong link between job stressors and employee performance could provide the impetus for organisational leaders to take job stress more seriously
and invest in creating a less stressful and more productive workplace for their employees.

The job stress intervention literature has supported the view that comprehensive stress prevention initiatives are more likely to be developed when senior members of the organisation can anticipate the business benefits of taking the action (DeJoy et al., 2010; Nielsen, Randall, Holten, & Gonzalez, 2010; Noblet & LaMontagne, 2009). This literature indicates that gaining the support of organisational leaders is critical to the success of job stress prevention strategies, particularly those addressing organisational conditions. Stressors involving employee workloads, decision-making systems, managerial support and other organisational conditions are often entrenched within the cultures and operations of organisations. Therefore, changing these conditions is time-consuming and costly, at least in the short term. Strong management support is required to ensure the changes are adequately resourced, are not vulnerable to competing interests and are well integrated throughout the organisation. To generate this support, leaders need to be able to recognise how the interventions/strategies will benefit their organisation’s ‘bottom line’. In this light, studies that can shed light on the strength and nature of the relationship between job stressors and employee performance can be used to help build a much stronger business case for investing in job stress prevention initiatives. In particular, with a more accurate understanding of the real impact of stress on performance, companies may be prompted to manage stressful working conditions in the same way that they would manage faulty equipment, dysfunctional purchasing systems, communication breakdowns or any other systems or issues impacting on the quality and quantity of the services that they provide. In view of this, an expected outcome of investigating the effects of daily job stressors on
performance-related measures longitudinally is that information will be provided about the strength and nature of the stressor-performance relationship, which organisations will then be able to employ in addressing work stress more effectively. This line of research could provide important theoretical and practical implications regarding timely stress interventions, and encourage companies to invest in stress-management initiatives aimed at maximising outcomes for companies and employees.

2.1.2 The costs of job stress.

The immediate and long-term impact of stress in the workplace is reflected in the costs of stress borne by employees, companies and national economies. At the individual employee level, the adverse effects of job stress are costly to employees’ wellbeing and their ability to complete everyday work tasks. A large amount of research has uncovered a wide range of strains associated with workplace stressors. Among health and wellbeing strains are physiological reactions such as excessive muscular tension, bodily pain and discomfort, headache, indigestion, hyperventilation, sexual dysfunction, cardiovascular disease and mortality (Amick et al., 1998; Bishop et al., 2003; Flynn & James, 2009; Hayne & Feinleib, 1980; Karasek, Baker, Marxer, Ahlbom, & Theorell, 1981; Kristensen, 1995; Levi, 1996; Saastamoinen, Laaksonen, Leino-Arjas, & Lahelma, 2009). In addition to health symptoms, employee responses to stress in the workplace have been found to include effects on employee attitudes and behaviours. Research reports that these responses may manifest as lower job satisfaction (Tuten & Neidermeyer, 2004), smoking and high-risk drinking (Davey, Obst, & Sheehan, 2001; Richmond, Kehoe, Hailstone, Wodak, & Uebel-Yan, 1999; Violanti, Marshall, & Howe, 1985) higher absenteeism (Schaufeli, Bakker, & Van Rhenen, 2009), turnover intention (Chiu,
Chung, Wu, & Ho, 2009), and, to a lesser extent, reduced productivity (Motowidlo, Packard, & Manning, 1986; Spector, Dwyer, & Jex, 1988).

The deleterious effects of stress at work are not only a concern for the employees involved, but can also be problematic for the organisation. The negative outcomes of job stress on individuals’ wellbeing and productivity have been found to lower overall organisational efficiency and result in high direct expenditure being incurred by employers. For example, the business may incur costs associated with decreased job performance, lowered job satisfaction, absenteeism, turnover, sabotage (DeFrank & Ivancevich, 1998), increases in workers’ compensation claims (Hart & Cotton, 2003), and increases in medical bills, legal bills and insurance premiums (Manning, Jackson, & Fusilier, 1996; Wallace et al., 2009). Riga (2006) estimated that the average company could spend up to 20 per cent of its payroll on managing stress-related problems.

The rising cost of chronic job stress is also a looming threat for national economies. According to a 2009 survey, one in five workers in the European Union was experiencing work-related stress, with the cost estimated to exceed 20 billion Euros (European Agency for Safety and Health at Work, 2009). In Australia, the costs associated with job stress have been estimated to be 24.9 billion dollars, almost half of which was due to employee presenteeism (define as phenomenon of people going to work despite the feeling that, in the light of their perceived state of health, they should have taken sick leave) (Aronsson, Gustafsson, & Dallner, 2000) and absenteeism (EconTech, 2008). There are also firm indications that the economic costs of job stress are not abating. In the US for example, the total health and productivity cost of worker stress to American business has risen rapidly over the
past two decades, from an estimate of 150 billion dollars annually in 1990 (Sauter et al., 1990), to 300 billion dollars in 2007 (Cynkar, 2007).

While occupational stress appears to be problematic in all sectors and industries, there are some occupations in which job stress is considered a more serious concern. One of these occupations is policing, the members of which are thought to be particularly vulnerable to experiencing high levels of prolonged job stress (Bourbonnais et al., 2007; Brown & Campbell, 1994; Shane, 2010; Simons & Barone, 1994; Violanti & Aron, 1993; Yarmey, 1990). This high-stress environment is a key reason why policing was deemed to be a suitable context in which to investigate the relationships between workplace stressors and performance behaviours.

Several studies have highlighted the links between the stress experienced by policing personnel and a diverse range of negative health, attitudinal and behavioural outcomes. In a comprehensive review of stress in the law enforcement profession, Waters and Ussery (2007) concluded that police are susceptible to a variety of stress-related symptoms. These symptoms include depression, alcohol and drug use, digestive disorders, respiratory ailments, post-traumatic stress disorder, cardiovascular disease and suicide. Other symptoms that are often studied within the policing context are burnout (Beltran et al., 2009; Martinussen et al., 2007; McCarty, Zhao, & Garland, 2007), musculoskeletal pain (Burton, Tillotson, Symonds, Burke, & Mathewson, 1996; Gershon, Lin, & Li, 2002; von dem Knesebeck, David, & Siegrist, 2005) and psychological distress (Adams & Buck, 2010; Andrew et al., 2008; Janzen, Muhajarine, Zhu, & Kelly, 2007). In addition, police stress is linked to a range of poor work attitudes including job dissatisfaction (Brough & Frame, 2004;
Turnover intentions (Adams & Buck, 2010; Brough & Frame, 2004) and low organisational commitment (Lambert, Hogan, & Griffin, 2008; Morris, Shinn, & DuMont, 1999; Noblet & Rodwell, 2009a). A small body of research has also found that stress may adversely influence police performance behaviours (Meyerhoff et al., 2004; Shane, 2010; Szalma, Stafford, & Hancock, 2008).

While work stress is a genuine threat to police health and wellbeing, the monetary and work-related costs of stress have also significantly affected how law enforcement organisations operate. For example, the costs associated with police stress in Scotland amounted to four million pounds in 2005 (Livingstone, 2006). The costs of police stress in England and Wales are also high. In 2008 alone, a sum of 37 million pounds and 225,000 days off work were required to combat officers’ mental health problems, such as stress-related depression and anxiety (Hickley, 2009).

Further, rates of sick leave taken by English and Welsh police officers were reported to be much higher than those of the private sector average. The level of stress within Australia-based law enforcement agencies is as much a concern in this country as it is in the UK. A recent survey revealed that an average of one in five police officers in the Australian State of New South Wales needed to take sick leave due to stress-related issues (Orams, 2010). Similarly, compensation claims for stress-related psychological injuries among police officers in the State of Queensland more than doubled in a span of two years, from 1.3 million Australian dollars in 2007–08, to 2.8 million in 2009–10 (Ironside, 2010).

The high health and economic costs associated with police stress costs not only reinforce the significance of work stress within this profession, but also support
the need to better understand the conditions and circumstances that contribute to this heightened risk. The rising costs of stress in law enforcement also raise questions about the work-based factors that are contributing to these costs and, in particular, whether these factors are related to the nature of policing work (such as attending accident scenes, investigating violent crime and involvement in other critical incidents) or to the organisational and social environments in which policing work is undertaken (such as the decision-making systems, supervisory support, workloads and rostering schedule). The broad categories of work-based factors identified in police stress research are reviewed in the following section.

2.1.3 Job stressors experienced by law enforcement personnel.

A range of working conditions that influence stress in the law enforcement context have been identified, and can be divided into acute and chronic stressors (Anshel, Robertson, & Caputi, 1997; Gaines & Jermier, 1983; Reinecke et al., 2007). Acute stressors, sometimes referred to as operational stressors in the police stress literature, arise from operational policing duties, including exposure to shootings, court appearances, experiencing physical danger and violence, dealing with deceased persons, the death of fellow officers, injuries and frequent conflict due to criminal apprehension and crime prevention (Brown, Fielding, & Grover, 1999; Brown & Campbell, 1990; Gaines & Jermier, 1983; Reinecke et al., 2007). Chronic stressors, also referred to as organisational stressors, are the products of administrative practices and organisational arrangements, such as long working hours, tight deadlines, complexity and quantity of work, lack of communication and opportunities for receiving feedback and guidance, role stressors (including role overload, ambiguity and conflict), inadequate resources, limited discretionary decision making, a lack of social support and unfair policies, perceptions or other
Traditionally, acute stressors have dominated the police stress literature. Demands specific to operational police work have been linked to particularly severe health and behavioural outcomes, such as alcoholism (Davey et al., 2001; Richmond, Wodak, Kehoe, & Heather, 1998), drug abuse (Davey et al., 2001), anger (Buker & Wiecko, 2007), domestic violence (Gershon et al., 2009), trauma and other post-traumatic symptoms (Andrew et al., 2008; Bryant, 2005), divorce (Beehr, 1995; Deshamps et al., 2003) and suicide (Stuart, 2008; Violanti, Vena, & Petralia, 1998). Police are also subject to a higher rate of cardiovascular disease incidence, including coronary heart disease and stroke, as a result of having been exposed to these acute stressors comparatively more than has the general population (Franke et al., 2010). The severe and often immediate health outcomes associated with stressors inherent to policing-specific tasks have strengthened the assumption that policing is a high-stress occupation (Shane, 2010). Also, research on operational stressors has promoted the idea that the law enforcement occupation is distinctive in eliciting deleterious outcomes similar to peacekeeping, law-enforcing, and emergency services such as the military (Tang & Ibrahim, 1998), fire and ambulance (Brough, 2004; Brough, 2005; Sluiter, 2006; Yu, 2009) and correctional work (Buunk & Peeters, 1994; McLaren, Gollan, & Horwell, 1998; Patterson, 1992).

Although much of previous research on police stress has been based on studies focusing on acute stressors experienced while performing operational duties, the number of studies focusing on chronic job stressors has risen sharply over the last
two decades (e.g., Brown, Cooper, & Kirkcaldy, 1996; Huddleston, Stephens, & Paton, 2007; Shane, 2010). A distinct feature of this developing area of research is that the focus is on investigating stressors that are not unique to policing, or even to human-service occupations (Brough, 2005; Sauter et al., 1990). Given the link with organisational systems and management practices, these stressors are generic to most organisational settings (Karasek & Theorell, 1990). Employees are constantly in contact with organisational systems and practices, even when undertaking operational tasks, and it is this frequent and ongoing exposure that can contribute to serious health and attitudinal outcomes. These outcomes include burnout (Kop & Euwema, 2001), psychological strain (Brough, 2004), job dissatisfaction and low organisational commitment (Brough & Frame, 2004; Brunetto & Farr-Wharton, 2003).

The current investigation has been designed to examine the chronic stressors experienced by law enforcement officers. There are a number of reasons for focusing on chronic sources of stress, and these reasons will be discussed in the following section.

2.1.4 Rationale for focusing on chronic stressors in law enforcement.

The purpose of this section is to explain why the current investigation will focus on chronic, work-based sources of stress in the policing context, rather than examining the sources of stress involving acute incidents. One of the reasons for concentrating on chronic stressors is that there is increasing evidence that stress in policing can be explained as much, if not more, by organisation-based job stressors (Berg, Hem, Lau, Haseth, & Ekeberg, 2005; Brough, 2004). In this regard, the law enforcement occupation is similar to other occupations in battling prolonged stress.
Another reason for focusing on chronic stressors in the police context is that police work has changed considerably in recent years. These changes can be attributed, in part, to new public sector management reforms drawn from the private sector (Deschamps et al., 2003). These changes have exposed public sector employees to chronic stressors such as heavy workload and limited job control to a larger extent than before (Collins & Gibbs, 2003). Organisational stressors are amendable to change (Gershon et al., 2009), and a major aim of this study is to help identify the working conditions that, if addressed, could help prevent or reduce stress-related performance decrements within state-funded law enforcement agencies.

**2.1.4.1 The effect of chronic stressors.**

Recent police-specific research has strongly supported the assertion that chronic stressors have as significant an effect on the wellbeing and job performance of law enforcement personnel as do acute stressors (Brough & Frame, 2004; Huddleston et al., 2007; Shane, 2010). In addition, stressors in daily routine work have been reported as capable of elevating to levels at which outcomes typically associated with police-specific stressors may be triggered, such as post-traumatic stress symptoms (Liberman et al., 2002) and depression that could lead to alcohol and/or drug abuse and suicide (Zukauskas, Dapsys, Jasmonaitė, & Susinskas, 2001). Some studies went further by suggesting that the influence on stress of chronic stressors exceeds that of the acute stressors unique to the law enforcement context (Biggam, Power, & Macdonald, 1997a; Brown et al., 1996; Collins & Gibbs, 2003; Garbarino et al., 2011; Hart, Wearing, & Headey, 1993; Kirkcaldy, Cooper, & Ruffalo, 1995; Kohan & Mazmanian, 2003; Kop, Euwema, & Schaufeli, 1999; Violanti & Aron, 1993). One study in particular found that stressors in the day-to-day environment mediated by job satisfaction and personal goal orientation could
increase psychological distress many times more than operational stressors (Violanti & Aron, 1993).

The findings that chronic stressors exert as much influence as acute stressors may seem surprising at first, given that policing is traditionally thought to involve frequent exposure to acute stressors that are dangerous and potentially life threatening (Brown & Campbell, 1990; Reinecke et al., 2007). However, acute stressors may not be as problematic, considering that most policing employees experience task-specific stressors comparatively infrequently in comparison to chronic stressors, which are experienced on a daily basis, just as in other occupational groups (Shane, 2010). This explanation is supported by studies that suggest that police officers are not constantly engaged in the active street role (frontline duties) as the image of the occupation may portray (Davey, Obst, & Sheehan, 2000). Research has also increasingly recognised that policing is more about serving the community than about crime fighting (Jobson & Schneck, 1982; Shane, 2010). Specifically, there is an indication that policing can be considered alongside other human service occupations that have face-to-face dealings with clients, such as the general practitioner and social work occupations. This stands in contrast to the often made comparison between policing and the military, emergency and correctional services (Brough, 2005; Gaines & Jermier, 1983; McCafferty, McCafferty, & McCafferty, 1992). In this light, policing personnel may be thought to experience stress in similar ways to other human-service workers.

Another explanation for the importance of chronic stressors is that police undertakes high-risk work in an occupational context in which there are concerns around autonomy, support and workloads (Biggam et al., 1997b; Collins & Gibbs,
2003). These concerns point towards organisational issues involving how people are managed and the manner in which their work is organised. These issues are part of everyday work that could exacerbate any of the problems that people may have relating to operational matters or what they are dealing with on the job. With this in mind, the organisational and social contexts represent unavoidable sources of stress that may amplify the impact of stress experienced ‘in the line of duty’.

2.1.4.2 The influence of new public management strategies.

The influence of chronic stressors such as heavy workloads, reduced levels of decision latitude and supervisor support has recently been intensified as a result of the changing nature of police work and the influence of new management strategies in the public sector (Buker & Wiecko, 2007; Deschamps et al., 2003; Noblet & Rodwell, 2009b). Over the past two decades, public sector agencies in major industrialised economies including Australia, the US and the UK have undergone major organisational and administrative transformations to achieve greater efficiency and accountability while maximising service outputs (Bryett, 1999; Hood, 1995; Polliit, 1993; Polliit & Bouckaert, 2011; Steane, 2008). A hallmark of this approach to managing the public sector, also referred to as ‘new managerialism’, or ‘new public management’ (NPM) (Hood, 1995), is to take management strategies typically used in the private sector and apply them to public sector organisations. As a result, established management methods traditionally used in the public sector, including in the policing services (Andersson & Tengblad, 2008; Densten, 2001), have been infused or replaced with organisational management strategies generally found in the private sector. These modern management methods include responding to competitive market forces and clients, innovation, cost cutting and close
monitoring of individual and organisational performance (Bryett, 1999; Coyle-Shapiro & Kessler, 2000).

The NPM’s focus on continuing to reduce costs while improving service effectiveness has brought about several changes in how public sector employees approach and complete their work. One of the biggest changes is that employees are expected to adopt private sector practice, while also fulfilling civil service obligations (Wanna, O’Faircheallaigh, & Weller, 1992). Public sector workers are expected to become more receptive to constant economic, social and technological changes (Bayley, 1994; Bryett, 1999; Cope, Leishman, & Starie, 1997), and respond to these changes innovatively as would employees in the private sector (Brodeur, 1998; Goldstein, 1990). However, employees are expected to adapt to these changes while also maintaining quality public services that meet the often complex needs of individuals, families and whole communities. These needs are not only subject to ongoing changes, but the unpredictability of these changes makes it difficult for agencies to anticipate the types of programmes and services that will be required, or the level and types of resources needed to provide these services (Coggburn, 2001; Klingner, 1993; Mesch, Perry, & Wise, 1995).

Another implication of NPM-led practice is that the degree and nature of the required changes have altered working conditions in the public sector in a manner that increases the challenges in undertaking work roles. Given the cost-containment initiatives, public sector managers are under constant pressure to drive the same, or higher, levels of outputs with more restricted resources, for example, having fewer people involved in a given task, completing the task within tighter time-frames and/or having reduced budgets to purchase required equipment or services (Brunetto
Evidence has begun to reveal that, under these circumstances, work intensity has increased and job demands have grown substantially for public employees (Buker & Wiecko, 2007; Vickers & Kouzmin, 2001). In particular, the ‘doing more with less’ approach has created heavier workloads and an increased pace of work (Morland, Steel, Alexander, Stephen, & Duffin, 1997). The levels of autonomy and social support received by employees in state-funded human services have also been affected. Centrally-prescribed audit systems and performance goals, and increased external control over budgets, have been found to limit the autonomy of public sector managers (Butterfield et al., 2005; Currie, 1999; Hoque, Davis, & Humphries, 2004). Further, dismantling or delayering hierarchical organisational structures through decentralisation have increased individual responsibility, but have not enhanced employee decision-making authority (Butterfield et al., 2005; Dixon, Kouzmin, & Korac-Kakabadse, 1998). The emphasis on containing costs, particularly in relation to staffing levels, has also reduced opportunities for employees to seek social support, and for managers to provide this support (Brunetto & Farr-Wharton, 2005; Butterfield et al., 2005; Dixon et al., 1998). Taken together, studies show that NPM-oriented service agencies are subject to a range of problematic working conditions, including higher intensity of work, less control for employees and less contact between superiors and subordinates (Beltran et al., 2009; Brunetto & Farr-Wharton, 2005; Butterfield et al., 2005; Vickers & Kouzmin, 2001).

The problematic working conditions, which appear to have become more pronounced following the introduction of NPM-oriented reforms, have been linked with a number of negative outcomes including job dissatisfaction (Brunetto & Farr-Wharton, 2003), lowered organisational commitment (Korunka, Scharitzer,
Carayons, & Sainfort, 2003; Mikkelsen, Osgard, & Lovrich, 2000; Young, Worchel, & Woehr, 1998), psychological strain (Brough, 2004) and burnout (Kop et al., 1999). In addition, these findings further reinforce the importance of focusing on chronic rather than on acute stressors, particularly within NPM-influenced public sector environments.

2.1.4.3 Capacity to change chronic stressors.

Finally, the decision to focus on chronic stressors in the current investigation is due to the extent to which these conditions are amenable to change. While it is difficult to prevent or alter dangerous and traumatic situations involving the public, it is more possible to modify stressors in the organisational environment (Gaines & Jermier, 1983; Gershon et al., 2009; Shane, 2010). Chronic stressors in the workplace have been considered among the most changeable and re-designable psychosocial aspects of work, thereby presenting valuable opportunities for developing stress prevention/reduction strategies (DeJoy et al., 2010; Karasek & Theorell, 1990; Sauter et al., 1990). Evidence from the current investigation could contribute to the development of preventative measures that address modifiable organisational characteristics in the policing context. Results from this line of research could also be transferred more widely to other occupational groups operating in the public sector that are exposed to high levels of workload and insufficient levels of control and social support. These occupations may include the service-based professions such as nursing, general practice, teaching and social work (Gaines & Jermier, 1983). In conjunction with subsequent research involving a broader range of human services, the current project may help identify those conditions that need to be addressed to prevent/reduce stress-related performance decrements across the human-service sector.
2.1.5 In summary.

Section 2.1 identified the importance of focusing on job performance behaviours in stress research, and examined both the sources and effects of stress for operational policing personnel. The review argued that it is important to recognise the impact of job stressors on performance to help strengthen the business case for investing in stress-management strategies. The review also highlighted the rising costs of stress where employees are regularly exposed to job stressors. More specifically, with reference to the literature, it was argued that certain organisational conditions can play a key role in exposing employees to chronic stress, and that this is certainly the case in the policing occupation. Organisational conditions in the public service, including within law enforcement agencies, have been heavily influenced by the NPM-style reforms that have impacted on state-funded agencies throughout much of the western world. The corresponding increase in chronic stressors associated with these reforms makes the relationship between chronic stressors and workplace behaviours a particularly important topic of research, especially given that chronic stressors are amenable to change. Also, due to the diverse range of occupations affected by these reforms and chronic stress types, such an investigation may be generalisable across a number of public sector human service professions.

While there are numerous working conditions that could impact on the stress experienced by police officers, the current investigation will focus on four conditions that have shown strong and consistent predictive value across a range of occupational groups. These conditions are job demands, job control, social support and organisational justice. The following sections will review these working conditions within the framework of two stress models, the Job Strain Model (JSM)
(Karasek & Theorell, 1990) and justice theory (Colquitt, 2001). The aim of this review is to assess how closely these frameworks reflect the working conditions typically experienced by the study sample and to consider the extent to which these frameworks are suitable for guiding the current investigation. The review will posit that these models are appropriate for theoretical, empirical and contextual reasons, and each of these reasons will be examined in detail.

2.2 The Job Strain Model (JSM)

The following section will focus on the JSM, which comprises job demands, job control (Karasek, 1979) and social support (Karasek & Theorell, 1990). A major aim of the first part of this section is to identify the capacity of the full JSM (both additive and interaction components) to capture working conditions that are particularly influential in the aetiology of job stress. The second part of this section will build on empirical research involving the JSM, and provide an overall assessment of the theoretical, empirical and contextual reasons why this model is suitable for guiding the current investigation.

2.2.1 Individual elements of the JSM.

The JSM consists of three generic working conditions that have long been recognised as being among the most influential working conditions associated with job stress (Hauser et al., 2010; Ohly & Fritz, 2010; Stansfeld & Candy, 2006; van der Doef & Maes, 1999). These conditions are job demands, job control and social support. Job demands refers to aspects of the job that require sustained physical and/or mental effort (Bakker & Demerouti, 2007; Karasek, 1979). While workload is often found as one of the most common job demands (Taylor, 2009), a variety of other job demands have also been identified, including time pressure and role-
related demands, such as role ambiguity and role conflict (Gilboa et al., 2008). Job control refers to the ability of employees to exercise control over the skills and methods they use to perform their job (i.e., skill discretion) as well as the extent to which they can contribute to decisions affecting their job (i.e., decision authority) (Karasek, 1979). Social support is defined as helpful social interactions from people surrounding the employees including co-worker and supervisors (Johnson & Hall, 1988; Karasek & Theorell, 1990). Common forms of social support include emotional support, appraisal support that provides evaluation information, informational support that entails advice and suggestions for dealing with demands, and instrumental support that includes more concrete forms of help such as money, time, and physical assistance (House, 1981). The three working conditions represented in the JSM have been among the most closely examined psychosocial factors in chronic stress research, largely because, as job-design variables (Humphrey et al., 2007), they are considered core characteristics of most jobs (Spector, 1986; van der Doef & Maes, 1999). Most employees across multiple sectors and professions are therefore exposed to these working conditions on a regular basis (Fried & Ferris, 1987; Ohly & Fritz, 2010).

The influence of job demands, job control and social support has been well documented in the occupational health psychology literature. Job demands have been found to show effects on a broad range of outcome variables including burnout, satisfaction, mental exhaustion, turnover intention and fatigue (Gilboa et al., 2008). Extended exposure to certain job demands can lead to mental and physical illnesses, absenteeism and reduced productivity (Ganster & Schaubroeck, 1991; Westman & Eden, 1992). These stress-related health and behavioural outcomes have also been found to relate to low levels of job control (Bond & Flaxman, 2006; de Lange et al.,
Maintaining feelings of control is important to employee’s positive coping behaviours, his or her engagement with the job (Heaney, House, Israel, & Mero, 1995) and overall productive work outcomes, including both perceived and objective performance and citizenship behaviours (Bond & Bunce, 2003; Humphrey et al., 2007; Piercy, Cravens, Lane, & Vorhies, 2006). In relation to social support, a large body of research has focused on the health and attitudinal effects associated with the support from work-based sources such as colleagues and supervisors. The results indicate that support from supervisors and colleagues is closely linked with employees’ mental health and wellbeing (Bourbonnais et al., 2007), burnout (Halbesleben & Buckley, 2004), physical strains (Stetz et al., 2006), job satisfaction (Chiu & Chen, 2005), and turnover intent (Chiu et al., 2009).

The three elements of the JSM are relevant to multiple occupations, and their effects have been supported in multi-wave longitudinal research. De Lange, Taris, Kompier, Houtman and Bongers (2004) illustrated the relevance of the JSM elements in their four-year, four-wave study of a heterogeneous sample of 668 employees using structural equation modelling. The study indicates the causal relationships between the JSM working conditions and mental health, particularly for the model for a one-year time lag. Ibrahim, Smith and Muntaner (2009) supported these findings in their six-year, three-wave, multi-group study. Their cross-lagged path analyses of 17,276 individuals aged 18–56 in the labour force revealed significant relationships between the impact of the three JSM elements on depression and distress. In particular, the relationships were strongest for the two-year time lag as compared to the longer time lag (6 years). These studies emphasise the ubiquitous nature of the JSM working conditions, and their relevance to the everyday work environment across work groups. This research also strongly
suggests that job demands, job control and social support are key working conditions that consistently predict various health and wellbeing outcomes. Finally, this research helps establish the additive impact of the three conditions over a period upward to two years.

2.2.2 The combined and synergistic JSM hypotheses.

The JSM is not only favoured for its selective combination of key psychosocial working conditions that are commonly encountered in organisations, but also for its focus on both the additive and interactional effects of these conditions. The additive hypothesis highlights the independent impact of job demands, job control and social support on strains, whereas the interactional hypothesis assumes that the adverse effects of job demands can be offset by job control and/or social support. The following sections will review these hypotheses, beginning with the two-dimensional JSM consisting of job demands and job control (Karasek, 1979). The review will then shift to assumptions supporting the three-dimensional model, which extends to include social support (Karasek & Theorell, 1990). The review will show that the central tenet of the JSM rests heavily on the assumption that the predictive power of these working conditions is contingent on their synergistic effects more than on their combined effects.

2.2.2.1 The two-dimensional JSM.

The JSM describes the additive and interaction effects of key stress-related working conditions on wellbeing and employee effectiveness (Karasek & Theorell, 1990). The original JSM consists of job demands and job control, and responds to calls for a model that incorporates two of the most important working conditions in stress research (Karasek, 1979). Before this point, the effects of job demands and job
control had been studied separately, and little was known about their synergistic impact on strains (de Jonge & Kompier, 1997; Karasek, 1979). An explanation for the lack of research combining job demands and job control was that there had been a dearth of theoretical frameworks that incorporated both concepts and explicitly tested for the interactions between the demand and control variables (Karasek, 1979). For example, the stress model proposed by the Institute of Social Research (French & Kahn, 1962) places emphasis on the negative impact of role conflict but does not discuss the influence of job conditions which can potentially alleviate adverse effects such as those stemming from job control (Karasek, 1979). As a result, the JSM was introduced with the aim of providing a model that clearly distinguishes between and incorporates both job demands and job control (Karasek, 1979).

With job demands and job control, the JSM predicts stress-related outcomes based on the additive and interaction hypotheses (Karasek, 1979). The two-dimensional JSM’s additive hypothesis posits that demands and control act independently of each other, and that an accumulation of high job demands and low job control produces high levels of strain. In contrast, the interaction hypothesis assumes that job demands can produce stress, but that the impact becomes less severe when employees can exercise discretion over how they deal with these demands. That is, the interaction hypothesis assumes that job control has a moderating influence over job demands, and that interaction between job demands and job control accounts for the levels of job outcomes above and beyond the additive effects of these job conditions (Fox et al., 1993). When the levels of job control do not match those of job demands, an increase in strains occurs. At this point, demands that were not necessarily negative (harmful) become stressors. This
assumption suggests that it is not the high demands of work per se that cause stress but rather “the joint effects of the demands of a work situation and the range of decision-making freedom (discretion) available to the workers facing those demands” (Karasek, 1979, p. 287).

The JSM further hypothesises that when job demands and job control interact, one of four possible conditions results. These conditions are low-strain (low demands, high control), high strain (high demands, low control), passive (low demands, low control) and active (high demands, high control). High-strain conditions (i.e., high demands and low control) are posited to create the highest levels of job stress. Conversely, a decrease in strain is considered the product of high levels of control in a situation in which job demands are low. Fluctuations of psychological strain are therefore a response to the comparative levels of job demands and job control. When job demands and job control are at commensurate levels (i.e., low demands and low control or high demands and high control), the level of job activity, rather than psychological strain, will be affected in two opposite directions. At one extreme where tasks are not demanding and employees do not possess high decision latitude, the overall activity will be in a decline due to the passive work environment. At the other extreme, employees are said to be in an active job when their tasks are high in both demands and opportunities for skill discretion and decision-making input. In this case, learning, prospects for change and growth, and feelings of competence and accomplishment are more likely to occur. These positive prospects enable employees to develop new behavioural patterns of benefit to both themselves and the organisation. In all, the four demands-control combinations highlight the crucial role of control in reducing strain and
enhancing learning. Control interacting with demand may not only help employees cope with the impact of stress, but may also result in higher levels of development.

Although the interplay between job demands and job control is intuitively appealing (Daniels & Guppy, 1994; Fletcher & Jones, 1993), research assessing the interactive demands-control model has produced mixed results (Hauser et al., 2010; van der Doef & Maes, 1999). A number of studies support the interaction model of the JSM for examining wellbeing, overall reduction of stress (Brymer, Perrew, & Johns, 1991; Landsbergis, 1988; Ryan & Deci, 2001; Searle, Bright, & Bochner, 1999) and, to a lesser extent, improved job performance (Dwyer & Fox, 2006; Orpen, 1994). Conversely, there are studies that have not found interactions between job demands and job control in the way Karasek and his colleagues proposed (Alfredsson & Theorell, 1983; Karasek, 1979; Karasek et al., 1981). In some cases, job demands and job control have been found to independently predict psychological strains (Chiang, Birtch, & Kwan, 2010; Cotton, Dollard, & de Jonge, 2002; Jimmieson & Terry, 1998). The possibility that the predictive power of demands and control hinges on their additive effects more than on their synergistic effects is supported by a review of the more robust longitudinal studies (de Lange, Taris, Kompier, Houtman, & Bongers, 2003). Out of 45 longitudinal studies involving the JSM, de Lange and colleagues shortlisted 19 studies that they considered outstanding in terms of the panel design, well-supported choice of time lag, reliable measures and inclusion of nonresponse analyses. De Lange and colleagues estimated that 63 per cent of these studies reported significant main effects of job demands for physical and psychological strain outcomes, 47 per cent reported main effects for control, and 37 per cent supported interactions between the two measures.
One of the reasons for inconsistent results regarding the interaction effects of the original JSM is thought to be the neglect to consider job characteristics that are derived from relationships with people in the workplace, such as social support (Johnson & Hall, 1988). The two-dimensional JSM (i.e., the demands/control model) was developed based on the assumption that stress is situated mainly in the work environment (Karasek, 1979). However, this original model does not take into account the relationships with supervisors, colleagues and subordinates that are also part of the organisational setting (Johnson & Hall, 1988). Working conditions including demands and control are embedded within the work environment, which is in turn situated within a context in which people constantly interact. Thus, it is crucial that demands and control are considered with an understanding of the social elements of a job. The view that the demands/control JSM could be improved by considering the relationship-based elements of an organisation led to the modification of the model to include one of the most salient working conditions: social support (Johnson & Hall, 1988; Karasek & Theorell, 1990).

2.2.2.2 The three-dimensional JSM.

The revised JSM comprises three elements: job demands, job control and social support (Karasek & Theorell, 1990). Similar to job demands and job control, social support has figured prominently in workplace stress studies (Cohen, Underwood, & Gottlieb, 2000; Viswesvaran, Sanchez, & Fisher, 1999). Indeed, social support and job control are among the most frequently tested and verified environmental moderators of chronic stress, and the availability of the three-dimensional JSM has further contributed to the frequent use of these two working conditions in job stress research (Beehr & Glazer, 2005; Hausser et al., 2010).
With the addition of social support, the JSM’s additive hypothesis posits that
the negative direct effects of high job demands and positive direct effects of low job
control and social support will lead to job strain. Likewise, the interaction
hypothesis of this expanded model posits that job demands can produce stress, but
that the impact becomes less severe when employees can exercise discretion over
how they deal with these demands, and when they receive support from colleagues.
That is, both job control and social support are assumed to have a moderating
influence over job demands. Moreover, the interaction between job demands, job
control and social support accounts for levels of job outcomes above and beyond the
additive effects of these job conditions (Johnson & Hall, 1988; Karasek & Theorell,
1990). A review of research assessing the three-dimensional JSM can be found in
Section 2.2.3.1.

The JSM has become one of the most recognised and widely used job stress
frameworks in contemporary occupational health literature (Hausser et al., 2010; van
der Doef & Maes, 1999). However, an important question remains about whether the
model should be used as a guiding framework for undertaking a study focusing on
the work-based sources of stress experienced by operational police officers. This
question is especially important given that there is a wide range of work-based
conditions that may contribute to stress-related outcomes, but only three of which
are incorporated in the JSM. Questioning the appropriateness of this model is also
important in view of recent calls for job stress research to be underpinned by models
that are relevant to the context in which the research takes place (e.g., de Jonge &
Kompier, 1997; Fletcher & Jones, 1993; McClenahan et al., 2007). Concentrating on
a small number of general working conditions may mean that stressors that are more
specific to the study sample are overlooked. Ultimately, the capacity of the current
investigation to identify the stressor-performance relationship will rest heavily on the particular conditions described in the guiding model and the extent to which the framework is relevant to the needs and circumstances of the study population.

The primary aim of the following section is to examine the reasons why the JSM was considered appropriate for the present study. The decision to focus on this model was based on empirical, contextual and theoretical grounds, and each will now be considered in detail.

2.2.3 Reasons for using the JSM in the current investigation.

There are a wide variety of working conditions that have the potential to influence performance (Jex, 1998). As it is impossible to include all conditions in a single investigation, it is important to select those conditions that will provide the best opportunity to identify relationships between job stressors and employee performance. The JSM (incorporating job demands, job control and social support) (Karasek & Theorell, 1990) is appropriate for the current project for empirical, contextual and theoretical reasons. Empirically, the three key stress-related working conditions represented in the JSM have been found to be strong predictors of a range of stress-related outcomes at work, including health and satisfaction (de Lange et al., 2004). In relation to the study context, the JSM conditions are relevant to the needs and circumstances of policing personnel, particularly when considering the reforms that have been introduced into many public sector agencies over the past 2-3 decades, and the impact these reforms have had on the psychosocial conditions experienced by law enforcement personnel (Beltran et al., 2009; Butterfield et al., 2005). There are also strong conceptual reasons for utilising the JSM, given that the most comprehensive approach to studying stress to date, the transactional approach,
has identified the JSM components as being instrumental in the onset and duration of job stress (Humphrey et al., 2007). The following sections review these reasons in detail.

2.2.3.1 Empirical grounds for adopting the JSM.

The cross-occupational versatility of the JSM, coupled with its parsimonious structure, has resulted in the widespread use of this model over the past 30 years (Hausser et al., 2010). This research has provided consistent support for the additive effects of demands, control and support. Three large-scale reviews of the JSM (de Lange et al., 2003; Hausser et al., 2010; van der Doef & Maes, 1999) have been undertaken over the past decade and these reviews have provided strong support for the additive effects of the three components variables on employee wellbeing outcomes. The most recent review (Hausser et al., 2010) examined 83 JSM studies published between 1998 and 2007, 19 (23 per cent) of which having applied a longitudinal design. Hausser and colleagues reported that 60 per cent of the reviewed studies supported the main effects of control and support, and 80 per cent supported the main effects of job demands on a number of wellbeing outcomes, including psychological health, job satisfaction and burnout. Moreover, support for the JSM additive hypothesis, either partially or fully, was provided from more than half of the longitudinal studies included in the study (52 per cent). This recent review of the JSM has confirmed the results of previous reviews, which also provided strong support for the additive effects of the JSM variables when compared to the interaction effects (de Lange et al., 2003; van der Doef & Maes, 1999).

The additive influence of the JSM elements has also been well documented in recent stress literature involving law enforcement personnel. For example, job
demands such as quantity of work, emotional demands and time constraints have been found to be associated with psychological distress (Bourbonnais et al., 2007; van Gelderen, Heuven, van Veldhoven, Zeelenberg, & Croon, 2007), depression (Gershon et al., 2009) and emotional exhaustion (Hall et al., 2010; Martinussen et al., 2007) among police officers. There have been issues with limited control in law enforcement work (Shane, 2010), with low job control being closely linked to health problems such as burnout (Martinussen et al., 2007), psychological distress (Bourbonnais et al., 2007) and increase blood pressure (Bishop et al., 2003; Karlin, Brondolo, & Schwartz, 2003; Kerkkanen, Kuiper, & Martin, 2004). Lack of perceived control at work was also a factor found to be associated with behavioural outcomes, such as problem drinking among law enforcement personnel (Davey et al., 2000). In relation to support from supervisors and colleagues, numerous studies reported relationships between work-based support and burnout (Martinussen et al., 2007; McCarty et al., 2007; Simons & Barone, 1994), turnover intent, dissatisfaction (Brough & Frame, 2004), mental ill health (Collins & Gibbs, 2003) and overall stress among policing personnel (Buunk & Peeters, 1994). Support from supervisor in particular has been found to be one of the best predictors of desirable organisational outcomes, such as high organisational commitment (Jaramillo et al., 2005; Morris et al., 1999) and lowered negative emotions and health complaints among law enforcement personnel (Buunk & Verhoeven, 1991). Recently, a series of studies involving Australian state-funded police samples have confirmed the strong negative links between job demands and job satisfaction, health and commitment, and the positive associations between job control and social support and the same three outcomes (Noblet & Rodwell, 2008; Noblet & Rodwell, 2009a, 2009b).
While the additive hypothesis of the three-dimensional JSM has been widely tested and supported, a relatively small number of studies have tested the its full interaction term, that is, demands x control x support (Hausser et al., 2010; van der Doef & Maes, 1999). There are indications that the impact of demands on wellbeing becomes less severe when employees have adequate levels of job control and social support to deal with the demands (Akerboom & Maes, 2006; Pascual, Perez Jover, Mirambell, Ivanez, & Terol, 2003; Verhoeven, Maes, Kraaij, & Joekes, 2003). Police stress research also suggests that the JSM interaction hypothesis, particularly the two-way demands/control model, may provide an accurate description of the pathway through which the working environment may impact on outcomes in the police context. The interactions between demands and control were found on high blood pressure (Bishop et al., 2003) and distress symptoms among correctional staff members (Bourbonnais et al., 2007). The moderating role of social support has been examined frequently in police stress research, although not necessarily within the JSM framework. Further, a number of police stress studies found that support from superior and colleagues can moderate the relationship between work events and distress (Patterson, 2003) and high blood pressure in highly stressful situations involving critical incidents (Karlin et al., 2003). Other studies highlight that the moderating power of social support may extend to acute stressors in policing. For example, social support measured as communications with peer and supervisor was reported to significantly moderate the relationships between traumatic stressors and adverse health outcomes (Stephens & Long, 2000).

The aforementioned studies consistently suggest that the broad occupational utility of the JSM and its interaction hypothesis are just as relevant to people working in law enforcement as it is to workers in other occupations. However,
longitudinal studies that could support causal inferences about the utility of the interactional effects of the expanded JSM are still scarce (Hausser et al., 2010; van der Doef & Maes, 1999). This limitation presents an opportunity for research to test for the synergistic effects of the three-dimensional JSM using a longitudinal research design. More information on how the current study will examine these effects in a longitudinal study can be found in Section 2.4.2.2.

Ample evidence of the impact of the JSM working conditions on police stress raises the question as to why these conditions are influential in the law enforcement environment. It is important to consider the extent to which the theoretical frameworks guiding this research match the study context, given that generic job stress theories designed to be relevant to a variety of occupational groups and work settings have been criticised for lacking relevance to specific work contexts (de Jonge & Kompier, 1997; Fletcher & Jones, 1993). The following section will discuss the relevance of the JSM elements to the policing context. The key aim of the section is to highlight that these elements are particularly influential because of the command-and-control nature of policing work, as well as influence of NPM-oriented reform strategies.

2.2.3.2 Contextual grounds for adopting the JSM.

The JSM is contextually appropriate for the current investigation because the elements of the model closely reflect the core characteristics of traditional police work and the recent administrative changes associated with the public sector (Coyle-Shapiro & Kessler, 2000). Research has indicated that law enforcement personnel experience heavy workloads, inadequate supervisory support and lack of decision-making input in their day-to-day tasks (e.g., Biggam et al., 1997b; Brough, 2004;
Although these unfavourable working conditions are prevalent in most work settings, the stress experience among police officers is considered particularly intense given that officers have to balance the roles of crime fighting and violence prevention with community service (e.g., Jobson & Schneck, 1982; Lord, 1996; Shane, 2010). Police are expected to actively involve various community, government, non-government and business groups in addressing, developing and implementing crime prevention strategies (Fleming & O'Reilly, 2007). However, partnering with these groups has often led to increasing demands being placed on police. Reasons for the heightened demands include a lack of clearly defined roles for the parties involved, the nature of the police organisational structure and culture that is often unsupportive of non-authoritarian approaches to local crime prevention efforts, a lack of training in skills critical to effective partnership work, and limited funding for the acquisition of essential resources for collaborative activities (e.g., Brereton, 2000; Cameron & Laycock, 2002; Fleming & O'Reilly, 2007; MacRae, Paetsch, Bertrand, & Hornick, 2005). There are also indications that the strong rank-and-file chain of command, strict protocols and well-defined sets of rules and regulations by which the conduct of policing personnel is governed can restrict control and decision-making opportunities for officers (Biggam et al., 1997b; Collins & Gibbs, 2003). Further, police officers rely heavily on supervisors and colleagues for social support, and there is a strong need for loyalty, solidarity and protection among policing personnel (Rothwell & Baldwin, 2007). One of the reasons for this high level of cohesion is that the majority of law enforcement tasks are achieved through interdependence (with this holding equally true when engaging with the public) (Shane, 2010). Another reason is that police work is often heavily scrutinised by the media and the
public, and police personnel may feel the need to ‘stick together’ even more strongly to defend themselves against criticism (Chin & Wells, 1997; Crank, 1998; Kingshott, Bailey, & Wolfe, 2004; Skolnick, 2002; Skolnick & Fyfe, 1993). Taken together, demanding workloads, low levels of job control and lack of social support are commonly experienced by officers working in a traditional police setting. The influence of these conditions is further amplified given the need for policing personnel to juggle the dual role of crime fighting and community service, while being under the watchful eye of governments, the media, community groups and the general public.

The JSM working conditions have become even more relevant to law enforcement groups due to the organisation-wide, NPM-oriented reforms introduced by the public sector agencies in Western democracies including the US, the UK, and Australia over the past 2-3 decades. NPM reforms were designed to improve the overall efficiency and effectiveness of the public sector by adopting approaches used predominantly in the private sector (Densten, 2001). These approaches involve responding swiftly to competitive markets and more demanding clients, making use of innovation, decentralising decision making, streamlining overly hierarchical organisational structures, and promoting ways of work that help minimise costs and maximise performance (Brunetto & Farr-Wharton, 2005; Bryett, 1999; Coyle-Shapiro & Kessler, 2000).

The NPM-led changes have had widespread effects on how state-funded agencies operate and, in particular, have had significant implications for those conditions represented in the JSM. In relation to job demands, the greater emphasis on containing costs and improving service efficiencies has led to significant
increases in both the volume and pace of work (Morland et al., 1997). These changes have increased employee responsibility but, in many cases, have not led to commensurate increases in decision-making influence and job control (Butterfield, Edwards, & Woodall, 2004; Dixon et al., 1998). Further, control over budgets and key agency functions has been mitigated because of increased external control and the enhanced influence of governments (state and national) and community groups (Hoque et al., 2004). The high demands of policing work, coupled with the increasing number of roles and responsibilities being devolved down to frontline managerial staff (such as sergeants and senior sergeants), have also been found to undermine the opportunities for policing personnel to seek and receive much-needed social support (Butterfield et al., 2004). The reductions in opportunities to receive support and control, coupled with the increases in work pace and responsibility brought by NPM have the potential to elevate the job stress already being experienced by employees (Noblet, McWilliams, Teo, & Rodwell, 2006; Noblet & Rodwell, 2009a).

In summary, there are strong indications that the NPM reforms introduced by governments over the past 2-3 decades have heavily influenced the working environments experienced by public sector employees, and this influence has been particularly prominent in relation to the JSM working conditions. Further, the links between the NPM and the JSM also suggest that the JSM is highly relevant to the state-funded policing context. This relevance is likely to increase the extent to which the JSM can account for the strain experienced by law enforcement personnel.
2.2.3.3 Theoretical grounds for adopting the JSM.

Given the calls for a model firmly grounded in stress theories to examine performance (Daniels & Harris, 2000; Jex, 1998), another clear benefit of using the JSM is that the model has strong theoretical support from the transactional approach for studying stress (Lazarus & Folkman, 1984). This section will review the four approaches to examining stress, and will argue that the transactional approach is the most appropriate for providing a conceptual foundation for the current investigation for two main reasons. First, the transactional approach has consistently identified key stress-related job conditions that are frequently examined including the JSM conditions. Second, the transactional approach is regarded as a more accurate assessment of how stress occurs and provides a firm indication of those conditions that need to be taken into account when identifying the work-based sources of employee stress (Cooper et al., 2000).

To date, four overlapping approaches have been used to study stress. The earliest framework, the response-based approach, regards stress as a physiological reaction to harmful events or conditions such as dangerous equipment or work overload, and focuses on identifying those reactions that signify that the person is under stress (Cox & Mackay, 1981). The response-based approach was followed by the stimulus-based perspective of stress, which focused on the negative aspects of the environment that threaten or undermine health (Dohrenwend & Dohrenwend, 1974; Holmes & Rahe, 1967). A difference between these two approaches is that the response-based approach views stress as an end result, whereas in the stimulus-based approach, stress is seen as a trying situation that puts pressure on a person’s resources and activates a particular response to the situation. Both of these approaches have been widely used in the disciplines in which they were first
conceptualised (i.e., medical research for the response-based approach and life stress research for the stimulus-based approach). In the context of psychology, the stimulus-based and response-based approaches have been criticised for neglecting differences in individual responses to potentially stressful situations and events (Cox & Mackay, 1981). Further, these approaches assume that stress is a static, depersonalised phenomenon that excludes the ongoing process of perceiving, appraising and coping that people experience when faced with potentially stressful situations (Cox & McKay, 1981).

Given the limitations of the response- and stimulus-based approaches, a more comprehensive stress approach was called for, resulting in the emergence of the interactional and transactional approaches (Cox, 1978; Lazarus, 1966). These latter approaches extend the stimulus/response perspectives by arguing that stress is not merely a static antecedent or outcome. Instead, stress is viewed as an ongoing process inclusive of causes and effects by which individuals transact with their environment through personal appraisals of demands and coping resources. In relation to the interactional approach, the approach extends the previous stress theories by linking the concepts of stress as an antecedent and stress as a response with the concept of intervening factors (Furnham, 2005). Therefore, a difference between the more traditional views of stress and the interactional view lies in their focuses. Uncovering independent or dependent variables in a stressful situation has been the theme of the more traditional views of stress. Identifying moderating factors (individual or organisational) that attenuate people’s responses to potentially stressful situations and/or factors that represent an intermediate state through which noxious stimuli may give rise to stress-related responses has been the focus of the interactional view.
Although integrating stimuli, responses and moderators into a stress concept was designed to improve on previous theories of stress, the interactional approach has also been subject to a number of criticisms (Cooper et al., 2000). A main limitation is that the integration has been seen only at the ‘structural’ level, neglecting to take into account the context of the potentially stressful situation. Further, the tests for statistical interactions central to the interactional approach have been viewed as largely quantitatively focused, prompting the approach to be considered passive and insufficient for explaining the active, ongoing process of the individual-environment relationship. To resolve this issue, it was argued that stress be defined by a more dynamic approach that acknowledges the assumptions of transaction, process and context (Lazarus & Folkman, 1984).

The calls for a more comprehensive stress model have culminated in the transactional model of stress. The transactional concept is based on the seminal work of Lazarus (Lazarus, 1966), and it is thought to represent a more comprehensive, context-bound and process-focused approach to defining stress. The transactional model is largely consistent with the interactional models (Cox & Griffiths, 1995), but also represents an extension of those models, given the emphasis on the dynamic, ongoing and reciprocal process of stress. Instead of equating stress with a cause, consequence or intervening event as have previous models, the transactional stress experience is a process that takes all of the above variables into account. That is, stress is not just an element in a person’s experience, but is an all-inclusive and ongoing/cyclical transaction between persons and environment. This transactional relationship between individuals and their environment is constantly evolving and reciprocal, with both the individuals and the environment exerting influence upon each other (Lazarus & Folkman, 1984). Compared to the previous three models of
stress, the transactional model is more personal because it narrows the scope of stress from a universal perspective to a subjective phenomenon (Antonovsky, 1979; Lazarus, 1966). The meaning of stress is no longer an objectively defined state or condition, but depends on the individual’s appraisal of his or her environment. The shift to viewing stress more subjectively also highlights the significance of the context in which the individual operates. With the transactional approach, stress becomes part of the context in which individuals constantly appraise their potentially stressful environments in relation to the resources available to deal with those situations (Lazarus & Folkman, 1984).

A central principle of the transactional model is the stress appraisal process consisting of two levels (Lazarus, 1966; Lazarus & Folkman, 1984). The first level, the primary appraisal, involves an assessment of whether events or situations have implications for individual wellbeing (i.e., whether the event constitutes loss/harm or the potential for loss/harm). Put differently, individuals need to assess whether a situation involves stressors or elements that they perceive as demands that would require adaptive responses (Jex, 1998). Events deemed as threatening trigger the second level of appraisal, called the secondary appraisal, whereby individuals assess whether they have the coping resources for effectively dealing with these events. Both internal resources such as self-esteem and physical stamina, and external resources such as ability to influence or control events and social support networks, are taken into account when assessing the ability to cope. A negative assessment (in which coping resources are deemed insufficient relative to demands) will result in stress. A positive assessment (in which coping resources are deemed adequate or exceeding demands) will neutralise the potential threat. The ongoing cognitive
appraisals of demands and resources are the key distinguishing features of the transactional approach.

The JSM has several characteristics that reflect the transactional approach. Research using the transactional model has identified a range of psychosocial working conditions that are likely to make important contributions to the employee’s stress experience. Three conditions in particular are most often and consistently found to play influential roles in the stress process, and these conditions are the three working conditions described in the JSM (Humphrey et al., 2007; Karasek & Theorell, 1990; Macdonald, 2003; Schreurs & Taris, 1998; van der Doef & Maes, 1999). Further, the JSM’s interaction hypothesis is compatible with the assumption of the transaction approach regarding how stress occurs and what conditions need to be taken into account in guarding against stress. The transactional approach suggests that a potentially stressful situation is not necessarily harmful provided individuals appraise their situation and find that they have sufficient resources to resolve the situation. Upon successful use of those resources, individuals might even find the experience of encountering job demands beneficial (Lazarus, 1990). The JSM interaction hypothesis makes a specific prediction that corresponds with this key assumption of the transactional approach. The JSM predicts that job demands will be damaging when the levels of job control and/or social support are comparatively low. That is, job demands are not necessarily unfavourable if the individual has appropriate levels of relevant resources, in this case job control and social support, to deal with the demands. This prediction implies that excessive job demands and low levels of resources (i.e., job control and social support) will activate worker’s stress appraisals (Lazarus & Folkman, 1984). When individuals appraise the situation and find that there are sufficient levels of job control and social support,
job demands may remain merely potential stressors and employees may respond by demonstrating positive outcomes such as learning, motivation and higher levels of productivity (Karasek & Theorell, 1990). Conversely, job demands will become stressors if workers cannot access appropriate amounts of job control and social support. The lower the relative levels of job control and social support, the more problematic job demands become and the more serious the outcomes will be (Karasek & Thorell, 1990). Using three key working conditions (job demands, job control and social support) the JSM captures demands and resources that play a critical role in the stress process and that are closely aligned with the transactional approach.

2.2.4 In summary.

Section 2.2 focused on the first theoretical framework that will be used to guide the current investigation, the JSM. The section outlined the three elements of this model: job demands, job control and social support. The JSM describes the additive and interaction effects of the three working conditions, highlighting that job demands will become deleterious to employees if commensurate levels of job control and social support are not available to deal with those demands.

The review also found that there is strong empirical, contextual and conceptual support for using the JSM to guide the current investigation. The close associations between the additive and interactive components of the JSM and indicators of job stress, the high level of fit between the component variables and the study context, and the firm conceptual links with the transactional approach to job stress all suggest that the JSM and the components therein are highly suitable for identifying stress-related working conditions in the current investigation.
2.3 Organisational Justice

The second conceptual framework guiding the current investigation involves perceptions of justice in the workplace. Organisational justice has been found to explain variance in a range of employee outcomes above and beyond job demands, job control and social support (e.g., Fox, Spector, & Miles, 2001; Francis & Barling, 2005; Kivimaki et al., 2005), giving rise to the notion that justice is a new psychosocial predictor of stress-induced health (Elovainio, Kivimaki, & Vahtera, 2002). Further, like the JSM, justice reflects important elements of the social and organisational environments in which policing personnel work (Kop et al., 1999; Ralston & Chadwick, 2010), and is supported by transaction-based theories (Blau, 1964; Hobfoll, 1998). The following section will review multiple dimensions of justice, and will expand on the empirical, contextual and theoretical reasons for assessing justice dimensions in addition to the JSM.

2.3.1 Measures of organisational justice.

Organisational justice, sometimes referred to as organisational fairness, is generally regarded as a multidimensional measure that takes into account people’s perceptions of fairness in the workplace (Greenberg, 1987). Research into justice perceptions in the workplace began in earnest with a number of seminal theoretical studies, including the theory of fairness in social exchanges (Homans, 1961), social exchange theory with particular reference to the expectation of benefits a person receives in exchange relationships relative to benefits that others receive (Blau, 1964), and equity theory (Adams, 1965). These theories gave rise to distributive justice, which is referred to the perceived fairness of organisational rewards such as pay and promotions (Adams, 1965; Homans, 1961). Shortly after, distributive justice
was contrasted with procedural justice, or the perceived fairness of decision making in reward distribution procedures (Leventhal, 1980; Thibaut & Walker, 1975). There is general agreement that the two justice dimensions are conceptually distinct and should be operationalised and measured independently (Ambrose & Arnaud, 2005).

The discussion in regard to dimensionality of justice was renewed with the introduction of interactional justice, which was defined as the perceived fairness of the interpersonal treatment received by employees during the implementation of reward distribution procedures (Bies & Moag, 1986; Bies & Shapiro, 1987). Interactional justice was deemed to be separate from procedural justice due to several conceptual differences. Procedural justice emphasises routine elements of reward allocation, such as the accuracy and correctability of the decision-making procedure for distributing these rewards (Leventhal, 1980). Conversely, interactional justice focuses on the social elements in interpersonal communication during reward allocation, including respect, honesty, adequacy of explanation and decorum (Bies & Moag, 1986; Bies & Shapiro, 1987). More recently, there was a proposal to separate interactional justice into interpersonal justice, defined as the perceived fairness of interpersonal treatments employees receive, and informational justice, defined as the perceived fairness of information given to employees during and after resource allocation (Greenberg, 1993). In this separation, interpersonal justice would capture the respect and decorum rules of interactional justice, while informational justice would incorporate the justification and truthfulness components.

The discussion about the dimensionality of justice has continued with some disagreement about the number of appropriate dimensions (Maharee-Lawler, Rodwell, & Noblet, 2010). In general, much empirical research has opted for the
two-dimensional model comprising distributive and procedural justice measures (e.g., Alexander & Ruderman, 1987; Lam, Schaubroeck, & Aryee, 2002; Tepper, 2001), or the three-dimensional model with the addition of interactional justice (e.g., Cohen-Charash & Spector, 2001; Devonish & Greenidge, 2010; Nadiri & Tanova, 2010). The four-dimensional model, which incorporates distributive, procedural justice interpersonal and informational justice has been used less frequently, although results are supportive of this more recent multidimensional measure (Colquitt, 2001; Judge & Colquitt, 2004; Maharee-Lawler et al., 2010).

Despite some disagreement regarding the appropriate number of dimensions, organisational justice has been considered an important organisational predictor, and research has consistently linked justice to a range of important employee outcomes. These outcomes include job satisfaction, organisational commitment and in-role and extra-role performance behaviours (e.g., Cohen-Charash & Spector, 2001; Colquitt, Conlon, Wesson, Porter, & Ng, 2001; Greenberg, 1990; Johnson, Truxillo, Erdogan, Bauer, & Hammer, 2010; Podsakoff, Bommer, Podsakoff, & MacKenzie, 2006). Studies have also reported differential effects of various justice types on organisational outcomes. Distributive justice has been found to relate strongly with pay satisfaction, whereas procedural justice is associated more with organisational commitment and trust in supervisor (Folger & Konovsky, 1989). Procedural justice and interactional justice were found to be major sources of a range of health outcomes such as psychological strain (Winefield, Saebel, & Winefield, 2010), poorer health (Elovainio et al., 2001), sickness absence (Elovainio et al., 2004), depression, anxiety and burnout (Inoue et al., 2010; Liljegren & Ekberg, 2009), and performance outputs including OCB (Cropanzano et al., 2001b; Moliner, Martinez-Tur, Ramos, Peiro, & Cropanzano, 2008; Moorman, Blakely, & Niehoff, 1998).
The differential effects of distributive, procedural and interactional justice measures have been reinforced and expanded by subsequent studies that incorporated all four dimensions of organisational justice (Colquitt, 2001; Colquitt et al., 2001). These studies revealed that motivation and job satisfaction had stronger relationships with distributive justice, whereas leader evaluation, helping behaviour and group commitment had stronger associations with procedural justice. Interpersonal and informational justice types also had unique relationships with these outcomes, and with behavioural outcomes including OCBs, withdrawal and negative reactions (Colquitt et al., 2001). The predictive value of the four individual organisational justice measures on important organisational outcomes investigated in Colquitt (2001) and Colquitt and colleagues (2001) have been supported and expanded in more recent studies (Andersson-Straberg, Sverke, & Hellgren, 2007; Bell, Wiechmann, & Ryan, 2006; Judge & Colquitt, 2004; Streicher et al., 2007).

Recently, the capacity of justice perceptions to predict important organisational outcomes has been further expanded to include stress-related employee health outcomes such as psychiatric disorders and sickness absence (Elovainio et al., 2002; Elovainio et al., 2005; Lindfors et al., 2009). This line of research indicates that the effects of justice perceptions have been found to remain constant after controlling for other well-known stress-related working conditions, particularly job demands, job control and social support (Elovainio et al., 2002; Eriksen, 2006; Kivimaki et al., 2004). Results from this research suggest that including organisational justice alongside the more traditional stressors could further increase the likelihood of identifying other key stressors in the workplace.
The decision to include justice in the current investigation was based partly on findings that organisational justice can identify important stress-induced outcomes over and above traditional stressors. However, like the rationale for drawing on the JSM, other considerations were taken into account, and these factors have been categorised as empirical, contextual and theoretical. The following section will review these considerations in more detail.

2.3.2 Reasons for using justice theory in the current investigation.

The following section will review the empirical, contextual and theoretical reasons for drawing on justice theory in addition to the JSM to examine the relationship between stress-related working conditions and job performance. An important aim of this section is to assess the extent to which justice theory may account for stress-related performance fluctuations in the policing context.

2.3.2.1 Empirical grounds for adopting justice theory.

Empirically, justice has been found to consistently explain variance in outcomes usually associated with more traditional stress-related working conditions. Earlier evidence that supports using a justice model to predict stress-related outcomes includes the work by Alexander and Ruderman (1987) and Zohar (1995). For example, Zohar (1995) reported that injustice was associated with more traditional stressors including role conflict, role ambiguity, workload and job control, and that injustice added incrementally to symptoms of stress above and beyond these traditional stressors. Findings from Alexander and Ruderman (1987) and Zohar (1995) are in line with equity theory (Adams, 1965), which assumes that inequity in the workplace such as pay inequality activates affective arousal in employees, and leads them to respond in a variety of negative ways. The theoretical
rationale provided by the equity theory is also consistent with the stress appraisal process (Lazarus & Folkman, 1984), which posits that people appraise their transactions with the environment to decide if a situation involves a stressor.

Since the earlier stress-justice studies (Alexander & Ruderman, 1987; Zohar, 1995), research focusing on the stress-related effects of justice has grown substantially. The most recent evidence of the influence of justice on employee health-related outcomes is mainly found in studies that employ a framework combining well-known stress-related working conditions, such as those identified in the JSM, with a multidimensional justice model. The overall aim of this line of research is to separate out the independent effects attributed to justice on health and wellbeing outcomes. Over the past decade, a large number of studies have examined the stress-induced outcomes using this combined framework (e.g., De Vogli, Ferrie, Chandola, Kivimaki, & Marmot, 2007; Elovainio et al., 2004; Eriksen, 2006; Ferrie et al., 2006; Inoue et al., 2010; Kivimaki et al., 2006; Lambert, Hogan, & Griffin, 2007; Lindfors et al., 2009; Winefield et al., 2010; Ylipaavalniemi et al., 2005). This research has uncovered a wide range of adverse health outcomes associated with low levels of fairness including self-rated health (Elovainio et al., 2002; Kivimaki et al., 2004; Lindfors et al., 2009), coronary heart disease risks (De Vogli et al., 2007; Kivimaki et al., 2005; Kivimaki et al., 2006), acute and chronic pain (Saastamoinen et al., 2009), minor psychiatric disorders (Elovainio et al., 2002; Kivimaki, Elovainio, Vahtera, Virtanen, & Stransfield, 2003), fatigue (Eriksen, 2006), psychological distress (Inoue et al., 2010; Sutinen, Kivimaki, Elovainio, & Virtanen, 2002; Winefield et al., 2010), depression (Ylipaavalniemi et al., 2005), sickness absence (Elovainio et al., 2004; Elovainio et al., 2005; Head et al., 2007) and exhaustion (Siltaloppi, Kinnunen, & Feldt, 2009). The stress-justice framework has
also been used to assess more positive organisational outcomes such as satisfaction, commitment (Lambert et al., 2007) and engagement (Inoue et al., 2010; Siltaloppi et al., 2009). In general, stress-justice research examining positive employee outcomes indicates that higher levels of fairness are beneficial to employees in much the same way as other resource-oriented working conditions such as job control and social support.

One of the key contributions of research employing the stress-justice framework is that this research has consistently shown the effect sizes associated with justice to remain even after accounting for variance attributed by more established job stressors of the JSM (i.e., job demands, job control and, to a lesser extent, social support). One of the possible reasons for the predictive capacity or organisational justice is that the justice model incorporates job elements that are different yet complementary to the more traditional job stress models such as the JSM (Kivimaki et al., 2004; Ylipaavalniemi et al., 2005). More specifically, the JSM elements identify key job-design variables (Humphrey et al., 2007). In other words, job demands, job control, and social support deal with the person’s job characteristics or situations in which the employee needs help (Kivimaki et al., 2004). The justice perceptions capture important and more basic elements of the context in which employees work (Miller, 2001; Morris et al., 1999; van den Bos & Lind, 2002). These elements may include organizational consistency, accuracy, ethicality, managerial decision-making, procedures used, and discrimination in organizations (refs 28-30 in Elovainio et al, 2002). Accordingly, research guided by the combination of traditional stress models and justice theory may be able to identify a wider range of working conditions, and provide the opportunity to extend
the predictive capacity of the study model than if one of these models were used alone.

Another important contribution of research using the combined stress-justice framework is that this research has shifted the attention from fair rewards (distributive justice) and fair reward distribution decisions (procedural justice) to fair interpersonal treatments during reward distribution (interactional justice). For example, Elovainio and colleagues (2001) explored the relationships between control and psychological strain through procedural and interactional justice. The study also investigated the possible intervening effects of these justice types in the control-strain relationships. Results confirmed that procedural and interactional justice mediated the relationships between control and health. The study was later extended with evidence of the mediating effects of both types of justice on sickness absence (Elovainio et al., 2004). Judge and Colquitt (2004) further expanded previous justice-stress research by incorporating interpersonal and informational justice measures and by examining the stress mechanism within fairness perceptions over a longitudinal timeframe. The study indicated that procedural and interpersonal justice had the strongest relationships with stress. The authors speculated that this finding was due to the two justice types being more accessible when compared to distributive justice. Distributive justice requires knowing about the reward-allocation outcomes received by others, while unfair personal treatments (i.e., interpersonal injustice) and the extent to which decision procedures have been explained comprehensively can be identified more easily. Subsequent research has confirmed that procedural justice and interactional justice, in comparison with distributive justice, have more stable relationships with a range of health outcomes including
depression, anxiety, physical health and burnout (e.g., Inoue et al., 2010; Liljegren & Ekberg, 2009).

Research featuring the stress-justice framework is also noteworthy because the findings from this research have been consistently supported by longitudinal studies. The longitudinal results suggest that justice has the long-term capacity to predict stress-related outcomes above and beyond traditional stressors. Approximately one-third of studies in this field employed a longitudinal design with a long time lag of 15 months to four years, and their results support the cross-sectional findings (e.g., Eriksen, 2006; Ferrie et al., 2006; Kivimaki et al., 2003; Winefield et al., 2010). Although the reason for a specific time lag was not always clear, longitudinal results have provided further assurance that the stress-justice framework can add considerable value to the job stress research.

The benefit of using the stress-justice framework is further strengthened by empirical evidence from law enforcement samples. Organisational justice experienced by policing personnel has often been examined alongside the more traditional stress-related predictors such as social support (e.g., Gershon et al., 2009; McCarty et al., 2007). This research indicates that organisational justice is among the key contextual factors that relate significantly to a number of important stress-induced outcomes including commitment (Morris et al., 1999), self-efficacy, job satisfaction (Reiley & Singer, 1996) and psychological illness such as depression (Gershon et al., 2009) and emotional exhaustion (Adebayo, Sunmola, & Udegbe, 2008). McCarty and colleagues (2007) reported that perceptions of injustice showed strong effects on work-related stress compared to other work environmental factors including operational stressors and peer support.
In summary, the review of studies in this section supports the empirical grounds for adopting justice theory in the current investigation. The review found that the number of studies in the stress-justice area is growing, and that the relationships between justice/injustice and strains are strong, even after associations between other traditional stressors and strains are accounted for. In particular, the high volume of studies that have emerged over the last decade provides clear evidence that justice is regarded as a new and influential contributor to both negative and positive stress-related outcomes.

2.3.2.2 Contextual grounds for adopting justice theory.

The nature of law enforcement work and the organisational structure for this work strongly support using organisational justice theory as a guiding framework for the current investigation. At the most fundamental level, justice perceptions are likely to be prominent in the law enforcement context, in which a strong sense of what is just and rightful is essential in the performance of all aspects of the work (Rothwell & Baldwin, 2007). Likewise, views based on perceptions of fairness (Leventhal, 1980; Tyler & Blader, 2000) are crucial in the law enforcement context, in which the work is both demanding and socially isolating (Kop et al., 1999; Ralston & Chadwick, 2010). Heavy workloads and long and irregular hours often prevent law enforcement employees from connecting socially with people from other walks of life, and policing personnel tend to depend on fellow officers for social interactions (Kop et al., 1999). If social exchange relationships are not reciprocated with respect and dignity, equity theory suggests that employees in close groups, such as those in policing, may experience strong feelings of unfair interpersonal treatment, which could affect employee performance (Eisenberger, Fasolo, & Davis-LaMastro, 1990). The need for secrecy in crime investigation, co-
dependence in performing demanding tasks, and protection from public scrutiny when things go wrong further intensifies social isolation and promotes the necessity for close bonds and camaraderie among policing personnel (Ralston & Chadwick, 2010; Rothwell & Baldwin, 2007).

Another characteristic of policing work that strongly supports applying organisational justice theory as a guiding framework is that law enforcement has been built on employees’ willingness to abide by strict codes of conduct and to follow rank-and-file chain of command at all levels of the organisational hierarchy. Such adherence to norms of conformity is largely shaped by employee belief that the management has legitimate authority to enforce these expectations (De Angelis & Kupchik, 2009; Ralston & Chadwick, 2010). Taken together, a sense of what is just and rightful, demanding tasks, solidarity among workers, and the closed and precise systems that form the basis for police work may amplify the importance of justice perceptions among law enforcement personnel.

The recent NPM-based reforms in public sector agencies, including in the policing services, may have heightened employees’ fairness evaluations further, particularly in regards to fair rewards (Rusaw, 2009). One of the key expectations commensurate with NPM is that employees should strive to ‘do more with less’ to meet the changing needs of communities while at the same time containing costs (Dillulio & Kettl, 1995; Kettl, 1993; Light, 1995). This disproportional anticipation may not align with the psychological contracts public sector employees have previously formed. Psychological contracts describe employees’ expectations that exchanges between them and the agency they work for are fair and equitable (Cropanzano & Mitchell, 2005; Eisenhardt, 1989). Under NPM-influenced reforms,
discrepancies in what employees must reciprocate (e.g., performance outputs, organisational commitment and work effort) in return for what their organisation should provide them (e.g., resources, pay and bonuses) have been found to lead to perceptions of unfair rewards and resource distribution among public service employees (Noblet et al., 2009b; Rodwell, Noblet, & Allisey, 2011; Rusaw, 2009).

2.3.2.3 Theoretical grounds for adopting justice theory.

This section will review the theoretical reasons for adopting justice models in the current investigation. These reasons are drawn mainly from resource and exchange theories that are also applicable when explaining the resource-laden characteristics of job control and social support. These theories are the conservation of resources (COR) theory (Hobfoll, 1998), Job Demands-Resources (JD-R) theory (Demerouti et al., 2001) and social exchange theory (Blau, 1964). Given that the review of these theories will be in-depth, the following section will be more detailed than the preceding sections on empirical and contextual reasons for investigating justice theory.

Employing organisational justice alongside the traditional psychosocial working conditions of the JSM is considered theoretically appropriate given that both theories contain dimensions that represent important external resources. The JSM posits that job control and social support have both additive and interaction effects in the onset and duration of job stress (Karasek & Theorell, 1990). This hypothesis implies that the possibility of job control and social support making valuable contributions to desirable employee outcomes such as performance may not only be a result of their stress buffering capacities, but may also be because they are important work-based resources (i.e., skill discretion, feedback, assistance) that
employees require in order to complete designated work roles (Burke & Richardsen, 1993). In the same vein, the stress associated with unfavourable reward allocation decisions (i.e., distributive injustice) can be offset by high levels of procedural, interpersonal and/or informational justice. At the same time, fair treatment can serve a more functional purpose by helping employees to clarify important work goals, minimise uncertainty regarding expectations and help identify relevant training and development opportunities (Cropanzano et al., 2002; Tekleab et al., 2005). The recent stress-justice research supports the notion of justice as an important work-based resource, reporting links between fair treatment and positive attitudes such as satisfaction, commitment (Lambert et al., 2007) and engagement (Inoue et al., 2010; Siltaloppi et al., 2009).

The rationale for framing job control, social support and justice perceptions as work-based resources is also supported by the COR theory, which defines resources as things that people value for survival and wellbeing (Hobfoll, 1998). The COR theory makes a proposition in line with the transactional stress appraisal process (Lazarus & Folkman, 1984) that people consider the resources available to them when experiencing potential stressors. A perceived lack of coping resources may lead to inability to effectively manage stress responses, whereas availability of resources will help individuals counter potential stressors more successfully. The COR theory also highlights that, because readily accessible resources are crucial for preventing stress, people strive to obtain these resources and endeavour to preserve and invest in them for future use (Hobfoll, 1998).

The COR theory is supported empirically, particularly in recent studies employing the JD-R model (Demerouti et al., 2001) The chief prediction of the JD-R
model is that job demands can be attenuated by job resources. In this regard, the JD-R model is a generic stress model similar to the JSM. An important difference is that the JD-R model takes into account a wide variety of possible job demands and resources rather than the three working conditions of the JSM. Nevertheless, among many work resources, the JD-R studies have consistently tested for and indicated that job control and social support were key resources in stressor-health and stressor-performance relationships (Bakker, Demerouti, & Euwema, 2005; Bakker, Demerouti, & Schaufeli, 2003; Bakker et al., 2004; Bakker, Van Emmerik, & Van Riet, 2008; Demerouti et al., 2001). Justice perceptions have only recently been investigated as a key resource within the JD-R framework, but the findings support the impact of fair rewards at work (Koyuncu, Burke, & Fiksenbaum, 2006) and supervisory justice (Siltaloppi et al., 2009) on work engagement. These studies provide further support for considering job control, social support and organisational justice as important work-based resources in the current investigation.

To understand the mechanisms through which individuals may obtain job control, social support and fair perceptions, it is important to further clarify key characteristics of these resources (Cropanzano & Ambrose, 2001; Cropanzano & Mitchell, 2005; Foa & Foa, 1974). Generally, resources may be differentiated into economic and socio-emotional resources. Economic resources provide material benefits that respond to financial and material needs and tend to be more tangible and universal. Socio-emotional resources provide social benefits that address an individual’s social needs and have more symbolic value. The economic/socio-emotional resource classification can be used to identify resources in the JSM-justice framework as follows. Job control is authority, based largely on the position description provided by the organisation (Jex, 1998; Karasek & Theorell, 1990).
This resource is more likely to attend to an employee’s material needs to perform their role. In this light, job control may be classified as an economic resource. Distributive justice and procedural justice are also considered economic resources because these justice types are concerned with rewards and the distribution process of these rewards, over which the organisation has primary control (Bies & Moag, 1986). On the other hand, social support from supervisor and colleagues is often symbolic and individualistic, thus support may be more appropriately regarded as a socio-emotional resource in an employee’s job (Armeli et al., 1998). Similarly, interpersonal and informational justice dimensions involve interpersonal treatments and communications, making it more suitable to regard these justice types as socio-emotional resources (Bies & Moag, 1986; Masterson, Lewis, Goldman, & Taylor, 2000).

The distinction between economic and socio-emotional resources is in line with Blau’s (1964) social exchange theory, which describes the mechanisms for gaining or replenishing different types of resources. Blau explains that generally people are motivated to participate in an exchange relationship by the expectation that they will receive valued benefits in return for the resources they provide the other party. Exchange is achieved when the individual who provides another individual with desired resources receives the anticipated benefits in return. Exchange will cease to exist if expected repayments are not duly received. The concept of exchange as a mutually rewarding process is guided to a large extent by the norm of reciprocity (Gouldner, 1960), which states that people in an exchange relationship are bound and driven to reciprocate to those who help them, do them a favour or treat them fairly to continue receiving those valued actions. Without this reciprocation, the exchange relationship cannot be sustained.
Blau (1964) also extends previous exchange theories (Emerson, 1976; Homans, 1961; Malinowski, 1922; Mauss, 1925; Thibaut & Walker, 1975) by separating exchange relationships into economic exchanges that entail specific, contractual obligations and social exchanges that incur unspecified, trust-based obligations. The contrast between the two exchange scenarios is that economic exchange is enforceable, while social exchange depends on the discretion of the individual that has received the social benefits. Another important difference is that economic exchange prompts rational calculation of the costs and gains to a much greater extent than does social exchange, which tends to stimulate gratitude, favour-driven trust and friendship among the people involved. In short, social exchange is more personal and intrinsically oriented, while purely economic exchange is more impersonal and extrinsically derived. Nevertheless, social exchange and economic exchange are similar in that both are driven by expectation of returns, and both terminate when provided benefits are not compensated.

Bringing together social/economic exchange (Blau, 1964) and socio-emotional/economic resource classifications (Cropanzano & Ambrose, 2001), economic or material resources may be hypothesised to change hands in economic exchange relationships, and socio-emotional or immaterial resources may be acquired in social exchange. The idea of matching resource and exchange types has been proposed in a number of studies (e.g., Blau, 1964; Konovsky & Pugh, 1994; Martin & Harder, 1994; Pillai, Schriesheim, & Williams, 1999), and research has indicated that the idea is worth pursuing empirically (Armeli et al., 1998; Byrne & Cropanzano, 2001; Hill, 1987). In a study examining the moderating role of affiliative need in the differential relationships between types of social support and wellbeing, Hill (1987) found that people with high socio-emotional needs benefited
more physically and psychologically from socio-emotional support than did those who had relatively less socio-emotional needs. Armeli and colleagues (1998) operationalised social exchange in terms of perceived organisational support (POS) and reported a stronger positive relationship between POS and performance in police officers with higher socio-emotional needs. In justice research, Konovsky and Pugh (1994) conceptualised social exchange as trust and examined whether trust was a stronger predictor in the relationship between procedural justice and OCB, relative to distributive justice and OCB. The hypothesis was confirmed and the study suggested that distributive justice was closely linked to economic exchange.

Findings from Byrne and Cropanzano (2001) support Konovsky and Pugh (1994) by showing that perceived fairness of interpersonal treatments (interactional justice) was closely tied to socially-oriented outcomes, such as organisational commitment. Byrne and Cropanzano also found that distributive justice predicted workplace politics, which is classified as an economic outcome. In all, these studies have provided some empirical findings that reinforce the idea of matching resource and exchange types proposed by previous theoretical studies (Blau, 1964; Konovsky & Pugh, 1994; Martin & Harder, 1994).

The current investigation draws on the theoretical and empirical grounds supporting matching resource and exchange types to conceptualise exchange relationships involving job control, social support and measures of organisational justice as follows. Job control operates within a prescribed contract with the organisation as a whole (French & Raven, 1959; Jex, 1998; Karasek & Theorell, 1990), hence control is inferred to engender economic exchange more than social exchange. Upon providing job control, the organisation would expect employees to reciprocate by completing tasks to the extent outlined in the contract (Bond &
Bunce, 2003; Greenberger et al., 1989). Social support may provide an impetus for a social exchange rather than economic exchange, given its origin in human interactions rather than in prescribed job descriptions (LaRocco, House, & French, 1980). The individual who offers social support would expect to receive benefits in return that may not necessarily be described as a requirement for performing a task such as helping behaviour (Chiaburu & Harrison, 2008; Harrison, Newman, & Roth, 2006). Distributive justice is an economic resource of which the main source is the organisation. Therefore, the organisation would expect employees to honour provision of this resource by reciprocating within the economic exchange relationship. The agent-system model introduced by Bies and Moag (1986) and extended by Masterson and colleagues (2000) clearly describes the exchange relationships in relation to procedural, interpersonal and informational justice measures. The agent-system model hypothesises that employees carry out exchanges with the larger organisation (i.e., the system) through the reward distribution process (procedural justice). Therefore, fair processes are more likely to be reciprocated with system-referenced outcomes as required in the employment contract. Conversely, employees draw on interpersonal and informational justice in their exchanges with their supervisor (i.e., the agent), and may reciprocate by increasing agent-referenced outcomes such as helping behaviour when they perceive fair interpersonal treatments and fair amount of work-related information (Masterson et al., 2000).

### 2.3.3 In summary.

Section 2.3 outlined the measures of justice perceptions in the workplace, and considered the empirical, contextual and theoretical grounds for including justice perceptions in the current investigation. A large number of empirical investigations have found that justice is predictive of stress-related health and wellbeing outcomes.
even after controlling for the effects associated with the more traditional stress-related working conditions described in the JSM. One of the reasons why justice is thought to offer additional explanatory value is that fairness perceptions tap into a different aspect of the work environment. That is, job demands, job control and social support are important job-design variables, whereas justice involves fair decisions and processes that shape the context in which work takes place. In terms of relevance to the study context, organisational justice has figured prominently in studies involving the law enforcement group, primarily because what is just and rightful is highly valued within the policing profession and underpins much of the work undertaken by law enforcement agencies. Further, demanding work in this context promotes a close relationship with and adherence to norms of conformity, which are largely shaped by employees’ perceptions of fair treatment from their colleagues and legitimate authority figures. Theoretically, the resource-based theories such as the COR theory and the JD-R theory suggest that appraisals of demands and resources could be partly based on fairness perceptions in a similar way to job control and social support. Further, the exchange theory and rules of reciprocity suggest that employees who receive these resources may be obliged to reciprocate in a manner valued by the organisation, including through in-role and extra-role performance. Therefore, considering the complimentary nature of the JSM and justice theory, the current study has selected to investigate working conditions drawn from both theoretical models.
2.4 Relationships between the JSM-Justice Working Conditions and Employee Performance Behaviours

The chapter so far has provided a comprehensive review of the study context, relevant stress theories and the working conditions under investigation in the current thesis, which include job demands, job control, social support and justice perceptions. The review revealed that these particular psychosocial conditions have been examined frequently in empirical work stress studies, and that they have been consistently shown to play important roles in stress experienced by employees, irrespective of occupational types or sector under investigation. As cited throughout the previous sections, the vast majority of occupational stress research has shown that psychosocial stressors can have significant implications for employees, particularly in terms of health and attitudinal outcomes. The review also revealed that these working conditions reflect important elements of the law enforcement context, and from a theoretical perspective, are well supported by a number of transactional theories.

With the importance of the JSM-justice working conditions established, the next step is to review the literature on the relationship between these working conditions and the outcomes under investigation: employee performance behaviours. A small number of studies that examined the stressor-performance relationships have been cited in the chapter so far (e.g., Motowidlo et al., 1986; Spector et al., 1988; Szalma et al., 2008). However, information about these relationships is sparse and, empirically, their connections remain ambiguous in comparison to the relationships between stress and wellbeing (Beehr et al., 2000)(Schreurs et al., 2012). Most of the existing stressor-performance studies also need further
clarification given that the majority have relied on cross-sectional data and have tended to overlook the impact of job stressors on extra-role performance behaviour (Jex, 1998).

In the following section, a critical review of research focusing on the relationships between performance measures and job demands, job control, social support and organisational justice will be undertaken. The aim of this section is twofold. The first aim is to review existing stressor-performance literature and identify the strength and direction of the relationship between the JSM-justice working conditions and employee performance. The second aim is to highlight those aspects of the stressor-performance relationship where further research is required, and to identify the specific areas or ‘gaps in the literature’ that will be the focus of the current investigation.

2.4.1 Consistent findings on the stressor-performance relationship.

Existing research examining the relationships between job stressors and worker performance generally indicates the negative direct impact of certain job demands such as role conflict and role ambiguity, positive direct impact of job control and social support, and weak to moderate associations between these working conditions and performance. Research on the relationship between job demands on performance often examines the hypothesis that heightened job demands are dysfunctional to employee performance behaviours (Cynkar, 2007). The negative hypothesis is based on the view that employees are likely to perceive a situation to be stressful when job demands exceed their resources or capacity for dealing with that situation (McGrath, 1976). As a result, the stressful encounters may activate a range of negative responses emotionally, physically and
behaviourally (Beehr, 1995; Kahn & Byosiere, 1992; Motowidlo et al., 1986). In a stressful situation, employees may experience damaging affective states such as anxiety, hostility and depression, as well as physiological reactions such as heightened blood pressure, increased respiratory rate and fatigue. Stressful encounters may also lead to unfavourable behavioural outcomes, such as reduced concentration, and lowered energy and alertness. Collectively, anxiety, fatigue and impaired concentration may restrict or undermine the employee’s ability to execute various tasks to the required standard, resulting in performance decrements.

The view that stressful conditions harm employee performance has been supported most consistently in research whereby job demands were operationalised as role conflict, role ambiguity (Eatough et al., 2011; Gilboa et al., 2008), job insecurity, work-family conflict, environmental uncertainly, situational constraints (Gilboa et al., 2008) and resource inadequacy (Beehr & Glazer, 2005). A recent study meta-analysed some of these key demand stressors in 169 samples ($n = 35,265$) from both published and unpublished manuscripts (Gilboa et al., 2008). Overall, the study found the negative direct effects of these job demands on job performance. The magnitudes of the correlations ranged from -.08 to -.34, averaging at -.16, which is considered rather weak given the rough guidelines that a correlation at or below .20 is small, a correlation between .21 – .50 is medium and a correlation at or higher than .51 is large (Cohen, 1988). The consistent negative relationship involving role conflict and role ambiguity in particular was confirmed in a more recent meta-analysis that included OCB as a measure of job performance behaviours (Eatough et al, 2011). Through investigating some of the key demand stressors, these meta-analyses help strengthen the negative linear hypothesis of the stressor-performance relationship.
In terms of employee control, two early meta-analysis studies reviewed a total of 109 studies on relationships between job control and performance (Fried & Ferris, 1987; Spector, 1986). Both investigations showed a positive linear and moderate relationship between these variables. More specifically, Fried and Ferris (1987) investigated job control conceptualised as autonomy and reported the positive correlation of .18. Similarly, Spector (1986) operationalised control as autonomy and decision making participation, and found that their associations with performance were .25. Given the guidelines that a correlation below .20 is small (Cohen, 1988), the effect sizes reported in these two studies are considered weak in comparison to those for attitudinal outcomes such as job satisfaction, which could be as high as .71 (Fried & Ferris, 1987).

The positive direction and weak strength of the linear relationships between job control and job performance found in Fried and Ferris’ (1987) and Spector’s (1986) reviews have been verified in experimental research (Jimmieson & Terry, 1998; Searle, Bright, & Bochner, 2001), cross-sectional studies (Biron & Bamberger, 2010; Chambel & Curral, 2005; Dollard, Winefield, & De Jonge, 2000; Snape & Redman, 2010) and longitudinal studies with various time lags (Bond & Bunce, 2003; Bond & Flaxman, 2006; Schaubroeck & Fink, 1998). For example, Schaubroeck and Fink (1998) recorded a correlation of .28 between job control measured at Time 1 and worker performance measured at Time 2 six weeks later. Bond and Bunce (2003) reported a correlation of .11 when job control at Time 1 was regressed on performance at Time 2 one year later. Bond and Flaxman (2006) found a similar correlation size between control and performance in their three-wave research design with the time lags of four weeks and three months ($r = .24$). These
studies reinforce the idea that job control has a positive, although relatively weak, relationship with employee performance.

Similar to job control, research generally supports the positive main effects of social support on job performance (Armeli et al., 1998; Beehr et al., 2000; Piercy et al., 2006; Wallace et al., 2009), although the strength of the correlations is at best moderate (i.e., lower than .50). Dwyer and Fox (2006) reported significant positive relationships between supervisor support and objective performance that were as low as .05 ($p < 0.05$), whereas Wallace and colleagues (2009) found the relationship to have the correlation of .36. Lim (1996) recorded the correlation coefficient for the negative relationship between social support and noncompliant job behaviour (a form of OCB that is not desirable) of -.34. Although the effect sizes of support-performance relationships are a little higher than those of demands-performance and control-performance relationships, these effect sizes are still much lower than those between social support and attitudinal outcomes, such as job satisfaction (e.g., $r = .69$—Chiu & Chen, 2005; $r = .65$—Piercy et al., 2006) or commitment (e.g., $r = .72$—Piercy et al., 2006). Again, the small effect sizes are expected considering that performance is more distal to stressors in relation to attitudes, and that performance is thought to have a large number of predictors (Jex, 1998).

The relatively small effect sizes are expected in stressor-performance studies for two reasons. The weak correlation results could be a result of the order of the effects. Performance is more distal to stressors in relation to attitudes, and working conditions may influence attitudes (proximal variables) such as motivation, which then influence performance (distal variables) (Kanfer, 1992). Another explanation is that employee performance fluctuates in relation to many other factors, thus the
small amount of explained variance is to be expected (Cooper et al., 2000; Leventhal & Tomarken, 1987; Zapf et al., 1996). Examples of other factors that could affect job performance are individual characteristics (e.g., skills and abilities, personality types), group-level variables (e.g., behavioural norms, cohesion) and organisational resources (e.g., training and development opportunities, technology and physical conditions).

Overall, the studies reviewed in this section revealed that certain job demands, particularly role conflict and role ambiguity, have a negative linear relationship with performance behaviours. Research also indicated that job control and social support have positive linear relationships with job performance, suggesting that these resource-based working conditions are beneficial to performance. Finally, the reviewed studies indicated that stressor-performance relationships are often weak compared to the relationships between stressors and attitudinal outcomes, the latter of which are more proximal to stress-related working conditions.

2.4.2 Areas for further investigation in stressor-performance research.

While stressor-performance research has indicated that the relationships between employee performance and specific psychosocial working conditions exist, there are a number of areas that remain unclear. The following section will consider the areas that require clarification, with the aim of highlighting the limitations that will be addressed in the current investigation. These issues include the emphasis on task performance, the reliance on cross-sectional design in previous stressor-performance research, the dominance of negative linear assumptions, the lack of clarity regarding the existence and direction of the impact of workload demands, and
the scope for exploring the relationship between organisational justice and employee performance.

2.4.2.1 The lack of information on multiple performance measures.

The first major limitation of research addressing the relationship between stress-related working conditions and employee performance is that this research rarely takes into account multiple measures of performance. The majority of previous research has focused on task performance, or has used an aggregate performance measure that does not distinguish between different performance types. The following sections discuss the reasons why it is important to differentiate between performance types.

2.4.2.1.1 Measures of employee performance: in-role and extra-role behaviours.

Whether various performance measures should be examined in stress research depends largely on how employee performance is defined. Traditionally, performance is viewed as employee behaviour that accomplishes certain tasks or goals that the organisation assigns specifically to that employee (Jamal, 1984; Lazarus, Deese, & Osler, 1952; Puffer, 1987; Wilkinson, 1969). This definition of performance is task-oriented, emphasising positive employee behaviour that directly serves the objectives of the organisation and contributes to achieving its core functions. However, this definition of job performance may be too narrow, given that other facets of performance that also contribute to the organisation are not taken into account. According to Barnard (1938), firms thrive on worker’s role-based outcomes as well as their ‘willingness to cooperate’ (p. 83). Theoretical work of Katz and Kahn (Katz, 1964; Katz & Kahn, 1978) specifies that employees need to
contribute both dependable role performance and ‘innovative and spontaneous behaviours’ (p. 403) to ensure organisational functioning. Taken together, Barnard (1938) and Katz and Kahn (1978) suggest that employee performance may be defined more broadly as employee behaviours at work that facilitate accomplishment of organisational goals (Campbell, 1990; Daniels & Harris, 2000; Wright & Cropanzano, 2000).

The broader definition of job performance suggests that employees’ productive behaviours would include at least task (or in-role) performance and contextual (or extra-role) performance. Task performance refers to employee behaviours in executing tasks that have been prescribed by the organisation (Motowidlo & Scotter, 1994). Task performance would typically include actions or activities performed to complete required tasks. In traditional performance studies, task performance has been used to describe overall employee performance (Hoffman, Blair, Meriac, & Woehr, 2007). The other category of employee performance is collectively called non-task performance, or discretionary behaviour that contributes to organisational effectiveness but does not fall into the category of task performance (Borman & Motowidlo, 1993; Organ, Podsakoff, & MacKenzie, 2006). There are a variety of terms for describing non-task performance, including contextual performance, pro-social organisational behaviour, civic organisational behaviour, organisational spontaneity, extra-role behaviour (Podsakoff et al., 2000), citizenship performance (Organ, 1997) and discretionary work performance (Hoffman et al., 2007). These terms suggest that non-task performance behaviours are helpful behaviours that benefit the organisation, but are generally not described in position descriptions or formal organisational reward systems (Hoffman et al., 2007). The form of extra-role performance that has been used most often in
organisational effectiveness literature is organisational citizenship behaviour (OCB), defined as actions in which employees are willing to go above and beyond their in-role requirements (Organ, 1988). Examples of OCBs include altruism, courtesy and conscientiousness (Fassina, Jones, & Uggerslev, 2008; Nadiri & Tanova, 2010; Organ, 1988).

Definitions of task-based behaviour and OCB suggest that differences between the two performance types lie principally in the contractual characteristics of the former and the discretionary basis of the latter. Task performance is formally recognised and openly rewarded. Actions that are task-based are therefore generally more observable than is OCB, which is not contractually acknowledged nor compensated, but without which tasks may not be completed smoothly or effectively. Put another way, task performance is about accomplishing the technical core of a job as detailed in the job contract, whereas OCB is about ensuring that the job environment in which the technical core exists is conducive to enhanced productivity. Further, employees are obliged to complete task performance, whereas they are not forced to contribute OCB. Rather, workers could use their discretion to perform this extra-role behaviour however and whenever they see fit.

The suggestion that job performance is more than productive task-based behaviour has received empirical support from research examining the relationship between attitudes and performance. Williams and Anderson (1991) demonstrated through factor analysis that task performance and OCB were separate dimensions of performance. Correlation analyses with attitudinal outcomes also support this distinction. Job attitudes such as job satisfaction have been found to relate more closely to OCB than to task performance (Landy & Becker, 1987; Organ et al.,
2006). More specifically, MacKenzie, Podsakoff and Ahearne (1998) emphasised the importance of distinguishing between in-role and extra-role behaviour types by demonstrating that in-role performance served as an antecedent of job satisfaction and organisational commitment, while extra-role performance was a consequence of these two variables. Edwards, Bell, Arthur and Decuir (2008) investigated the relationship between job satisfaction and in-role and extra-role performance types within the framework of social exchange. This study found that satisfaction with supervision was related more strongly with contextual performance, whereas satisfaction with the work itself was associated more with task performance. The distinction between the two performance types is also supported in studies involving turnover intent (George & Bettenhausen, 1990; Organ, 1988). This research shows that task performance is associated more directly with organisational success, which enables ongoing employment. Conversely, OCB helps create a positive and cohesive work environment that increases the organisation’s capability to attract and retain high-quality employees. Taken together, the aforementioned studies support the distinction between task-based and non-task performance measures.

The other topic that has been much discussed in previous research is in regard to the dimensionality of performance behaviours. As many as 30 dimensions of OCB from more than 40 measures have been identified (e.g., Borman & Motowidlo, 1993; Fahr, Podsakoff, & Organ, 1990; LePine, Erez, & Johnson, 2002; Podsakoff, MacKenzie, Moorman, & Fetter, 1990). Most of these dimensions are built on the five-dimensional model of OCB developed by Organ (1988), which consists of altruism (helping a specific other), conscientiousness (obeying rules beyond the minimum requirements), sportsmanship (tolerating petty incidents), courtesy (compromising) and civic virtue (having concerns for the organisation). Among
these various dimensions, two dimensions in particular are frequently identified as important forms of OCB (Organ et al., 2006). These two OCB dimensions are differentiated by receivers of helpful behaviours into altruism, or helping behaviour that benefits another individual directly, and organisational compliance, or compliant behaviour that benefits the overall organisation (Smith, Organ, & Near, 1983). These two dimensions are often conceptualised to cover a variety of OCB dimensions described in the more complex measures (Organ, 1988; Podsakoff et al., 2000). For example, Coleman & Borman (2000) grouped 27 contextual performance types identified from previous research into three categories of contextual behaviour targeting different receivers. Two of these were interpersonal citizenship performance, which mainly benefits the individuals in the organisation, and the other was organisational citizenship performance, which benefits the organisation as a whole.

Distinguishing OCB according to the recipients or targets of the behaviour is supported elsewhere in the literature. Williams and Anderson (1991) argued for two dimensions of OCB, collapsing Organ’s (1988) five dimensions into OCB-I, or helping behaviour that is directed at individuals in the workplace, and OCB-O, or helping behaviour directed at the overall organisation. The two dimensions were also found to differentially relate to attitudinal factors differently. OCB-O was associated more strongly with the intrinsic component of job satisfaction, whereas the extrinsic component of job satisfaction had a stronger relationship with OCB-I. Blakely, Andrews and Fuller (2003) further demonstrated a distinction between OCB-I and OCB-O relative to individual traits, attitudes and task characteristics in a longitudinal study with a one-year time lag. Individuals who had high levels of self-monitoring were found to contribute OCB-I more than those with lower self-
monitoring. Conversely, attitudinal factors including job satisfaction, commitment, POS and, to a lesser extent, job factors in the form of aggregated task characteristics incorporating skill variety, task identity, task significance, autonomy and feedback were associated only to OCB-O. Andrews and Fuller suggested that the strong relationships between attitudes and task characteristics were consistent with theories of social exchange (Blau, 1964) and reciprocity (Gouldner, 1960), which indicate that reciprocation efforts by employees are directed at the source of benefits (Settoon, Bennett, & Liden, 1996).

In summary, the review in this section emphasised that employee performance can be differentiated into prescribed and non-prescribed performance types. Further, non-prescribed performance is often operationalised as OCB, which can be further categorised broadly into OCB-I and OCB-O. This review also suggests that studies examining performance should cover at least three dimensions: task-based behaviour, OCB-O and OCB-I.

2.4.2.1.2 Lack of multiple performance types in stress research.

Although the literature has shown theoretical and empirical support for assessing both prescribed and non-prescribed performance behaviours, much stressor-performance research has emphasised on the prescribed performance type and neglected the extra-role performance type. The focus on task performance can be observed in the majority of stressor-performance studies that have employed laboratory and simulation-based approaches to examine performance decrements associated with adverse working conditions such as excessive workloads and low job control (Baddeley, 1972; Glass, Singer, & Friedman, 1969; Lazarus et al., 1952; Puffer, 1987; Shaw & Weekley, 1985; Wilkinson, 1969). This research tends to
measure observable stress-related indicators such as speed and accuracy in tracking, signal detection, verbal reasoning, sentence formation and problem-solving tasks. The outcomes under investigation in such classic stressor-performance research are likely to be observable productive behaviours, such as how thorough or fast a task is completed. In general, these laboratory-based studies consistently showed inverse stressor-performance relationships (i.e., as the intensity/duration of the stressor increases, employee performance decreases). However, these findings have not always been replicated in field research (Spector et al., 1988; Wright & Cropanzano, 2000). A possible reason for inconsistent results is that field studies are embedded in the respondent’s actual psychosocial structure of work and not in a controlled environment. Another possible reason is that field research, through necessity, is often based on self-report questionnaires rather than on observations or experiments. It is reasonable to assume that perceptions of job conditions influence psychological states, which in turn influence performance (Cox & Griffiths, 1994), and that the enactment of work conditions is partly dependent upon workers’ perceptions (Daniels, 1999).

Another implication of research that emphasises in-role performance is that little is known about how stressors may relate to specific performance dimensions (Bakker et al., 2004; Jex, 1998; Sullivan & Bhagat, 1992), particularly given the view that employees may be selective in reducing specific forms of performance in the face of unmanaged stress (Bergeron, 2007; Eatough et al., 2011; Organ, 1988; Schnake, 1991). More specifically, this view argues that stress from high work demands or loss of important work-based resources is likely to be associated more strongly with extra-role contribution from employees. Therefore, extra-role behaviour is likely to be lowered first in stressful events because this form of
performance is generally outside one’s job description and the formal reward system, whereas task-based behaviour is monitored and officially rewarded. Decreasing formally recognised productive behaviour may lead to serious repercussions that are linked directly to failure to satisfy performance goals at work, and employees would want to avoid the more severe ramifications of reducing task-based performance. The knowledge that stress may affect performance dimensions differently has an important practical implication. This information can help businesses monitor the levels of each dimension of performance, allowing managers to make more informed decisions about allocating resources to improve the performance type in need of attention. In the case that extra-role performance has been reduced, management can take the necessary steps to address the work-based sources before task performance is adversely influenced as well.

A small number of cross-sectional studies provide some preliminary evidence of how the effects of stress-related working conditions may vary according to each performance type. In an early review, employees who experienced a range of stressors, including excessive workloads, were found to complete complex tasks less effectively and simultaneously be less inclined to help others (Cohen, 1980). Chen (2009) included both task and contextual performance to study stress in the law enforcement context and found that job stressors associated more strongly with contextual performance, relative to task performance. A recent meta-analysis investigation examined 42, mostly cross-sectional studies addressing the relationships between role-based stressors and performance measures, and concluded that role conflict was associated more strongly with OCB than with task performance. Schaubroeck and Fink (1998) reported that control was linked with overall performance, while social support was only associated with OCB. Wallace
and colleagues (2009) confirmed the results from Schaubroeck and Fink (1998), reporting the correlations of .42 for social support and OCB, and .32 for support and task-based behaviour. This result is reinforced by another study that measured the association between social support and a variety of performance types including task-based behaviour, altruism and civic virtue (Piercy et al., 2006). The results showed that OCB measures were associated more strongly with social support. The correlations for support and civic virtue, support and altruism, and support and objective performance were .47, .37 and .30, respectively.

Results from the reviewed studies suggest that the common practice of assessing employee performance without differentiating its types, or focusing only on a single aspect of performance, may limit our knowledge of the stressor-performance relationship in a significant way. The emphasis on task performance may overlook the possibility that the strength and even the direction of the stressor-performance relationship may fluctuate according to the type of performance measured (Bakker et al., 2004; Motowidlo & Scotter, 1994). Further, mixed results might arise if extra-role behaviour is not distinguished from in-role behaviour. For example, MacKenzie, Podsakoff and Ahearne (1998) hypothesised that in-role performance would be related indirectly to turnover through organisational commitment. However, findings showed that in-role performance was related directly to turnover and bypassing commitment. Rather than ruling out commitment completely, MacKenzie and colleagues argued that failure to distinguish between performance types in previous research might explain the unexpected results. That is, previous research had generally aggregated in- and extra-role performance together as one construct, and the previously reported relationship between performance and commitment may be due primarily to extra-role aspects of
performance. This study and the studies that examined the differential influence of stressors on performance reinforce the importance of separating performance types in stress research further.

2.4.2.2 Research design constraints and the need for longitudinal studies.

The second major limitation of the stressor-performance research is that the majority of studies are based on a cross-sectional research design. The stressor-performance studies reviewed in this thesis, unless specified otherwise, have collected data at a single point in time. This trend mirrors wider stress research that has relied on the cross-sectional design (e.g., Tucker et al., 2008; Zapf et al., 1996). In 1996, Zapf and colleagues estimated that 90 per cent of published studies on the relationships between stressors and their outcomes were based on cross-sectional data. A careful search through the peer-reviewed journals published since Zapf and colleagues’ review indicates that the number of stressor-performance studies using longitudinal designs is still relatively low. Over this period, fewer than 20 longitudinal studies on the relationships between the JSM-justice working conditions and performance measures have been published (e.g., Bond & Bunce, 2003; Bond & Flaxman, 2006; Cotton et al., 2002; Dollard et al., 2000; Edwards et al., 2007; Greenberger et al., 1989; Lerner et al., 2010; Nagami et al., 2010; Park, Wilson, & Lee, 2004; Sargent & Terry, 1998; Sargent & Terry, 2000). Not surprisingly, longitudinally-designed stress studies in the policing context are even rarer, and most investigations assessing the relationship between the JSM and justice-based working conditions focused on wellbeing outcomes (e.g., Bourbonnais, 2007; Bridger, Kilminster, & Slaven, 2007; Brough & Frame, 2004; Hall et al., 2010). The lack of research examining the lagged effects of stressors, particularly in relation to
job performance behaviours, highlights the continued need for investigating how people respond to stressors over time.

Longitudinal designs have several advantages above cross-sectional designs. First, cross-sectional studies collect data at a single point in time, thus these studies present an important methodological concern for obtaining evidence to assess whether relationships remain stable across time, and whether the effects are long-term or due to one-off seasonal influences (Frese & Zapf, 1988). Longitudinal studies collect data at multiple time points, and these data may provide stronger evidence to infer the stability of relationships found in the dataset. The second advantage of longitudinal research is that the multiple data collection points improve capacity to reduce common method variance and to rule out third variable explanations for the relationships in question (Tucker et al., 2008; Wright & Cropanzano, 2000; Zapf et al., 1996). The third and perhaps most important benefit of longitudinal research is that this research could detect temporal effects that allow researchers to assess whether changes in the predictors are associated to changes in outcomes (Sullivan & Bhagat, 1992). Theoretically, evidence of temporal effects is necessary for establishing causal inference (Tucker et al., 2008). In practice, evidence regarding the timeframes in which chronic stress would show an effect is important for organisations, particularly in devising stress intervention strategies. The strengths of longitudinally-designed research strongly emphasise the need for studies that gather data from multiple time points to verify the stability of results across time, rule out common method variance and infer causal relationships.

An important point to keep in mind in relation to the longitudinal research design is the length of the time lag. Most existing longitudinal stressor-performance
research has involved short time lags of a few weeks or months (Bond & Flaxman, 2006; Cotton et al., 2002; Park et al., 2004; Sargent & Terry, 2000). However, health research indicates that longer time lags would be more appropriate in the case of chronic environmental conditions in which ill-effects may take longer to emerge and/or be expected to be more enduring (Dwyer, 1983; Zapf et al., 1996). The recommendation for longer time lags is supported by research indicating that chronic job conditions were associated with strong effects after one year for wellbeing outcomes including emotional exhaustion, job satisfaction (de Lange et al., 2004), boredom, anxiety, depression, anger, fatigue (Carayon, Yang, & Lim, 1995; Ibrahim et al., 2009) and absenteeism (Smulders & Nijhuis, 1999). The results from health studies are supported by limited research on the relationships between these working conditions and performance after one year (Bond & Bunce, 2003; Nagami et al., 2010). Longitudinal research with a longer time lag (e.g., more than one year) could reinforce the existing findings and reveal whether the effects of working conditions over performance persist beyond one year.

2.4.2.3 The need to test for interaction and curvilinear effects of stressors.

The third set of limitations of stressor-performance literature is the need for further investigation into the interaction and curvilinear relationships. The existing stressor-performance studies reviewed so far point toward an emphasis on the direct linear pathway between job stressors and employee performance where performance decrements are proportional to the intensity of the stressor involved. However, researchers have called for moderated and curvilinear relationships between stressors and performance to be taken into account in job stress studies (Gilboa et al., 2008; Rydstedt et al., 2006). The purpose of examining possible moderating and nonlinear effects is to inform strategies for addressing these conditions. More
specifically, testing for the direct, interaction and nonlinear effects associated with potential job stressors will aid in identifying specific circumstances in which working conditions may jeopardise or enhance job performance. A better understanding of these circumstances may then help managers to re-design jobs and develop stress management policies that are tailored to the specific needs of the individuals and/or the situation. More detailed information about the nature of the relationship between stressors and performance can also help firms identify when managers and supervisors need to intervene to reduce the ill-effects of stressful conditions and, in the case of moderating variables, define what these interventions should look like.

2.4.2.3.1 Testing for interaction-based relationships.

Stress is often assumed to have a variety of moderators (Zapf et al., 1996), and two work-based conditions that are frequently hypothesised to attenuate stress-related responses are job control and social support (LaRocco et al., 1980). The moderating role of these working conditions has often been examined within the framework of the JSM. As already discussed, this model posits that the impact of job demands becomes less severe when employees have job control and/or support to deal with those demands. This proposition has received support from empirical studies that have used the JSM to examine outcomes associated with employee wellbeing and job-related attitudes including psychological health and job satisfaction (Halbesleben & Buckley, 2004; Karasek & Theorell, 1990). The strength of the empirical links between the JSM’s component variables and health-related outcomes would suggest that the full JSM (i.e., where two and three-way demand x control/support interactions are assessed along with the additive demand + control + support model) may provide valuable insights into the specific conditions that are
closely associated with stress-induced performance fluctuations. Using the three-dimensional JSM in the current investigation will therefore maximise the opportunity to systematically examine the extent to which the stressors-performance relationship is moderated by resource-oriented working conditions such as job control and social support.

Although the proposed three-way interaction is a defining feature of the JSM, very little research has focused on the demands-control-support effects on job performance, or employed a longitudinal design to verify these effects. The majority of studies examining the performance-related effects associated with job stressors have utilised individual components of this model (e.g., Dwyer & Fox, 2006; Spector et al., 1988; Taris & Schreurs, 2009). More specifically, a careful search through peer-reviewed journals to date returned fewer than 20 studies exploring the interactions between job demands and job control on performance (e.g., Dwyer & Ganster, 1991; Flynn & James, 2009; Fox et al., 1993; Jimmieson & Terry, 1998; Schaubroeck & Fink, 1998). Approximately half of these studies did not find interaction effects, while those that did report interactions between job demands and job control may require careful interpretation due to their cross-sectional design (e.g., Dwyer & Fox, 2006; Dwyer & Ganster, 1991; Searle, Bright & Bochner, 2001). Fewer than 10 studies assessed the relationships between performance and all three variables contained in the full JSM (e.g., Chambel & Curral, 2005; Sargent & Terry, 2000; Searle et al., 2001). The lack of studies testing for the three-way JSM hypothesis mirrors the trend in health studies, where additive effects of the three dimensions were more frequently tested (van der Doef & Maes, 1999). These studies also revealed inconsistent results. Some found the moderating effects of job control (Searle et al., 2001; Searle et al., 1999) and social support (Sargent & Terry, 2000),
while others did not find any interactions (Dollard et al., 2000; Park et al., 2004; Schaubroeck & Fink, 1998).

Another key limitation of the research examining the interaction effects of the JSM variables on performance is that multiple performance types have rarely been included. Most of the JSM studies involving job performance focused on in-role performance (e.g., Beehr et al., 2000; Dwyer & Fox, 2006; Parker, Jimmieson, & Amiot, 2009). As a result, the extent to which the main and interaction effects of each of the JSM variables are differentially associated with the task and non-task-forms of performance is largely unknown. One of the few studies that has employed dimensions of the JSM to explore both in-role and extra-role performance types found that control was linked with overall performance, while social support was associated with OCB (Schaubroeck & Fink, 1998). However, interpretation was limited due to the cross-sectional design of the study. Overall, research on the relationship between JSM interaction terms and employee performance is limited, and the focus on cross-sectional studies makes it difficult to develop firm conclusions regarding the longer-term relationship between the JSM’s interactional hypotheses and employee performance. Studies using longitudinal data to test interactions between the three JSM variables are needed to clarify the extent to which control and/or support can moderate the relationships between work demands and employee performance behaviours.

2.4.2.3.2 Testing for curvilinear relationships.

In addition to accounting for interactions between predictor variables, the current investigation will test for curvilinearity to help clarify the stressor-performance associations further. There are a number of reasons for examining the
curvilinear relationships between stressors and performance. From a theoretical perspective, curvilinearity is a central hypothesis of several leading stress theories. The earliest stressor-performance hypothesis was part of Yerkes and Dodson’s (1908) stimulation and performance theory. This curvilinear hypothesis asserts that the nature of the link between occupational stress and employee performance depends on how manageable the demands are for employees. Demands that become too difficult to cope with result in lowered performance, while demands experienced at an optimal level lead to higher levels of performance. In other words, too little or too much stress may impair performance, and the relationship between stress and performance assumes an inverted U-shape. Other theoretical frameworks, including activation theory (Hancock & Ganey, 2003; Levi, 1972; Xie & Johns, 1995), Seyle’s stress model (Selye, 1974) and the Vitamin Model (Warr, 1987, 1990, 1994) have since reinforced this perspective.

The notion that stress could be both damaging and beneficial responds to the transactional definition of stress as the ongoing exchange between individuals and the environment (Lazarus, 1990; Selye, 1974). The view that job stress could be maintained at an optimum level to facilitate employee performance is particularly important. Rather than pursuing the impossible task of avoiding work stress that is inherent to most jobs (Karasek & Theorell, 1990), stress should be managed to maximise employee performance. The concept of curvilinearity is also embedded in the organisational justice literature, particularly in equity theory (Adams, 1965), which predicts negative outcomes when employees are over- or under-rewarded.

Theoretical support for nonlinearity has been reinforced through empirical research. Although evidence is limited due to neglect of curvilinear relationships in
favour of linear associations (Rydstedt et al., 2006), a growing number of studies have identified nonlinear relationships between stressors and health-related outcomes including job demands for job satisfaction, anxiety and depression (Warr, 1990), job demands for burnout (Vuorensyrja & Malkia, 2011), job control for job satisfaction (Fletcher & Jones, 1993; Rydstedt et al., 2006), job demands and social support for health (Borg, Kristensen, & Burr, 2000), and work-based support for job satisfaction and emotional exhaustion (de Jonge & Schaufeli, 1998). These studies showed that the adverse effects of demands and beneficial effects of job control and support had an optimal point. More specifically, the positive influence of job control and support was attenuated at high levels and had less of an effect at very high levels. These studies also support the suggestion that incorporating curvilinear effects may increase the predictive utility of a stress model (Borg et al., 2000; de Jonge, Reuvers, Houtman, & Kompier, 2000; de Jonge & Schaufeli, 1998; Karanika-Murray, Antoniou, Michaelides, & Cox, 2009).

Few studies have focused on the nonlinear relationships associated with organisational justice, although there are two notable exceptions. Van Dierendonck, Schaufeli and Bunk (1996, 2001) studied relationships between perceived equity and emotional exhaustion cross-sectionally and longitudinally, and found that the U-shaped relationship between the two variables remained constant after one year. Specifically, emotional discomfort peaked under conditions of both under-reward and over-reward, and dipped when the levels of equity were in between the two extremes. These studies suggest that an over- or under-supply of distributive justice could have negative implications for employee health. There is little information on the nonlinear effects of organisational justice on performance. However, support for curvilinearity from studies involving health outcomes would suggest that levels of
justice that are too high or too low could have negative implications for performance as well. If this were the case, managers and HR practitioners would need to monitor employees’ justice perceptions and be aware that efforts to improve perceptions of justice may have strong initial benefits, if initially inadequate, and diminishing returns if already high.

There are also methodological reasons for testing for curvilinear relationships. A failure to assess nonlinearity is thought to contribute to inconsistent findings involving the interaction effects of the JSM (Fletcher & Jones, 1993; Morrison & Payne, 2001). For example, Mansell and Brough (2005) controlled for curvilinear effects of job demands and job control before entering interaction terms for the JSM. The authors reported the overall significant curvilinear model for job satisfaction (change in $R^2 = .01$, $p < 0.05$), and the significant interaction between job demands and the skill utilisation measure of control in the following step (change in $R^2 = .01$, $p < 0.05$). Without controlling for curvilinear effects, interactions found among the JSM variables may be spurious, resulting in the misinterpretation of findings. Testing for curvilinear effects in the current investigation may not only improve the investigation from a methodological perspective, but may also extend the predictive power of the JSM and justice variables.

In summary, the literature reviewed in this section indicates that the three-way interaction between job demands, job control and social support, and the nonlinear effects of these working conditions have not been researched extensively in performance studies. It is important to examine these effects to understand the stressor-performance relationships more fully (Jamal, 1985; Muse, Harris, & Field, 2003; Patterson, 1992). Two important ways in which the synergistic relationship
between influential working conditions could be clarified is to apply the interaction hypothesis of the JSM and test for curvilinear relationships with multiple measures of performance in longitudinal research.

2.4.2.4 Unclear workload demand-performance relationship.

The fourth limitation of the stressor-performance literature is that the direction of the relationship between workload demands and performance remains largely unclear (Eatough et al., 2011; Gilboa et al., 2008). Although the negative direct hypothesis of the relationship between job demands and performance prevails (Cynkar, 2007), particularly when certain types of demands such as role conflict and role ambiguity (Eatough et al., 2011; Gilboa et al., 2008) are involved, this hypothesis has not been confirmed in research that operationalised demands as workload. Workload, defined as the amount of work a worker is expected to do within a specific timeframe (de Jonge, Bosma, Peter, & Siegrist, 2000), is an important and commonly investigated measure of job demands in stress research (Wellens & Smith, 2006; Whinghter, Cunningham, Wang, & Burnfield, 2008; Ylipaavalniemi et al., 2005). However, the potential of workload as a stress-related predictor of employee performance has not been examined in field studies as commonly as have other demand stressors such as role-based demands, and the results have not been as consistent as those involving other demand stressors (Eatough et al., 2011; Gilboa et al., 2008). Further, research investigating the influence of workload on performance has often produced conflicting results between laboratory studies and field studies. Research examining the relationship between workload on performance has a long tradition of employing the laboratory and simulation-based approaches (Baddeley, 1972; Puffer, 1987; Wilkinson, 1969), and this research generally showed inverse stressor-performance relationships (i.e.,
as the intensity/duration of the workload increases, employee performance decreases). Conversely, field studies have often failed to replicate these results. Some studies did not find any significant relationships between workload and performance (Glaser, Tatum, Nebeker, Sorenson, & Aiello, 1999; Shaw & Weekley, 1985), while others found negative relationships between workload and objective performance (Beehr et al., 2000). A third group of studies, which generally involved cross-sectional research, reported positive relationships between workload and performance. For example, Spector and colleagues (1988) investigated three measures of workload (employee perceptions, work hours and number of people employees worked for) and supervisor’s ratings of performance of 156 female clerical employees. Supervisor reports of employees’ perceptions of workload were found to correlate with performance in the positive direction ($r = .28$), reinforcing the view that workload has positive influence on job performance.

The finding that certain stressors such as workload may have beneficial effects on certain types of performance is not surprising, as it is reasonable to assume that people who experience the heaviest workloads would also complete the largest amount of work (Beehr, 2000). This suggestion is in line with the positive linear hypothesis on the relationships between job demands and performance. This hypothesis (which has not been researched as much as the negative hypothesis) states that increases in stress induce higher levels of challenge, resulting in increases in performance (Beehr & Glazer, 2005; Sullivan & Bhagat, 1992; Tuten & Neidermeyer, 2004). Individuals have the best opportunity to improve performance when the stress level is high, rather than when it is low or moderate, due to the opportunity to face optimal challenge associated with high levels of stress. For example, heavy workload might be an opportunity to gain promotion, thus the
employee is more likely to strive for increasingly higher levels of performance. This hypothesis has only received moderate support from empirical research, most of which employed workload as a measure of job demands (Beehr, 1976; Beehr, 2000).

More recently, research has proposed another hypothesis that takes into account both the negative and positive influence of stressors, and this hypothesis is commonly referred to as the challenge-hindrance hypothesis (Boswell, Olson-Buchanan, & LePine, 2004; Cavanaugh et al., 2000; Gilboa et al., 2008; LePine et al., 2005). The basis for the challenge-hindrance hypothesis can be traced back to the stress appraisal process within the transactional stress theory (Lazarus & Folkman, 1984). The stress appraisal process posits that a potentially stressful situation may be appraised either as an adversarial threat, or as an opportunity for growth and future beneficial gain, depending on the resources people have to cope with the situation. The ‘threats’ of stress were termed hindrance stressors, and the ‘gains’ of stress were termed challenge stressors in the factor analysis study of several well-known stress measures that gave rise to the challenge-hindrance hypothesis (Cavanaugh et al., 2000). Examples of challenge stressors from this study were workload and job complexity, whereas hindrance stressors included role ambiguity, role conflict, hassles and red tape.

LePine and colleagues (2005) expand the challenge-hindrance hypothesis further by proposing the links between the challenge and hindrance stressors and performance. These links are based on the motivation pathways of the expectancy theory (Vroom, 1964). The expectancy theory assumes that proportionate relationships between people’s belief in the levels of effort they spend in coping with demands and the probability of successfully overcoming these demands could
influence motivation to cope and acquire favourable outcomes. Employees facing a challenge stressor are motivated to deal with the stressor because they believe that there is a positive relationship between the effort that they put in and the chance of overcoming the stressor. Moreover, they believe that they will be rewarded with desired outcomes when the stressor is managed in a more effective way. Employees facing a hindrance stressor are unlikely to believe in such a positive relationship. They would be hesitant to cope with the stressor in a problem-focused manner for fear of losing resources that could otherwise be used to manage demands associated with valued outcomes. This possibility is reflected in the COR theory, which posits the importance of retaining resources for possible stress coping (see Section 2.3.2.3).

The relationship between challenge and hindrance stressors and employee outcomes including performance has been investigated in empirical research (Pearsall, Ellis, & Stein, 2009; Wallace et al., 2009; Webster, Beehr, & Love, 2011) and meta-analytic studies (LePine et al., 2005; Podsakoff, LePine, & LePine, 2007). The overall results of these studies are supportive of the challenge-hindrance hypothesis. This research suggests that the challenge-hindrance hypothesis holds promise as an alternative thesis for the stressor-performance relationships, particularly if the more popular negative linear hypothesis continues to produce conflicting results.

On the basis of the conflicting stressor-performance hypotheses reviewed in this section, it is difficult to predict with any certainty whether workload is associated with job performance and, if it is, what the direction and the strength of that association might be. Clearer information on this relationship could therefore help firms to decide the amount of work they can delegate to employees and, more
generally, how they should modify workloads to maximise performance outcomes (Beehr, 1995).

2.4.2.5 Limited stress-justice research examining job performance.

The final limitation of the stressor-performance research that the current investigation will explore is the lack of information on organisational justice as a stress-related predictor of employee performance. Recent research has begun to explore a predictive framework that combines a traditional stress model such as the JSM with organisational justice theory in an attempt to separate out the unique effects associated with justice perceptions when examining stress-induced employee health and wellbeing outcomes (Elovainio et al., 2004; Inoue et al., 2010; Winefield et al., 2010; also see review of this research in Section 2.3.2.1). A key strength of this research is that the dual model is capable of identifying a wide range of outcomes (Kivimaki et al., 2004; Ylipaavalniemi et al., 2005). Moreover, this research has found that the justice model can account for unique variance on a large number of health-related measures that cannot be explained by the job content characteristics such as the components of the JSM (De Boer, Bakker, Syroit, & Schaufeli, 2002; Elovainio et al., 2002; Kivimaki et al., 2004). This research has also given rise to the claim that organisational justice is a new psychosocial predictor of stress, and resulted in increased attention on the relationship between organisational justice and a wide range of health-related outcomes.

The strong predictive capacity of the combined stress-justice framework in relation to health outcomes suggests that this model could also be used to examine other outcomes including worker performance. A large amount of justice research outside the stress domain has provided support that justice positively relates with
task performance and OCB (Devonish & Greenidge, 2010; Miles, Borman, Spector, & Fox, 2002; Nowakowski & Conlon, 2005; Organ et al., 2006; Podsakoff & MacKenzie, 1993). This research, coupled with research that revealed the strong independent links between justice/injustice and measures of job stress, would suggest that justice dimensions would be capable of accounting for variance in performance-related outcomes over and above the effects attributed to the JSM.

Although the combined stress-justice framework is relatively new to the job stress literature and has yet to be examined in relation to stress-related performance fluctuations, there are strong indications that this framework would be appropriate for assessing the relationship between stress-related working conditions and employee performance. Research has shown that employees who are fairly treated are less stressed, have better attitudes and are more productive (Wright & Cropanzano, 1998). This research implies that fair perceptions may be just as effective in predicting positive indicators such as productivity, as they are for predicting health and wellbeing. Janssen (2001) found that fairness perceptions could explain variance in objective job performance, self-rated innovation work behaviour and supervisory satisfaction in a subordinate’s performance after personal characteristics and job demands were accounted for. In another study, perceived reward fairness included in a regression step with job demands was found to increase the amount of explained variance in the overall regression that accounted for job control (Janssen, 2000). Finally, Fox and colleagues (2001) reported that procedural and distributive justice could explain variance in counterproductive work behaviour towards the organisation and individuals above and beyond job demands and job control. Results from the aforementioned studies provide empirical support for using the stress-justice framework to examine performance-related outcomes.
These results also suggest that a stress-justice framework made up specifically of the JSM and multidimensional justice theories provide an appropriate conceptual framework for guiding the current investigation.

To expand on previous stress-justice research, the current investigation will explore two areas that until now have rarely been examined. One of these areas involves employing the interpersonal and informational justice measures, which are distinct components of interactional justice (Colquitt, 2001). Interactional justice, along with procedural justice, has been included frequently in a stress-justice framework (Francis & Barling, 2005; Lambert et al., 2007; Saastamoinen et al., 2009; Winefield et al., 2010). The two justice types have gained steady support as primary features of organisational justice in predicting health (Inoue et al., 2010). This trend seems to reflect recent emphasis on fairness of decision-making rules and interpersonal treatments over distributive justice in the extant literature (Blader & Tyler, 2003; Cropanzano, Byrne, Bobocel, & Rupp, 2001a; Cropanzano, Rupp, & Byrne, 2003). Despite growing empirical support for interactional justice, research that employs a stress-justice framework has yet to examine the independent contributions made by the two interactional justice dimensions, interpersonal justice and informational justice types. Research differentiating between distributive, procedural, interpersonal and information justice has reported that these justice types have unique relationships with a number of organisational outcomes including job satisfaction, organisational commitment and withdrawal behaviour (Colquitt, 2001; Colquitt et al., 2001; Judge & Colquitt, 2004). These studies suggest that a justice model that incorporates all four justice measures, rather than aggregating interpersonal and informational justice, may assist in identifying a more specific
range of fairness-related working conditions that are associated with stress-related employee outcomes.

The second area where a better understanding of the relationship between organisational justice and employee performance is required is in relation to justice-based interactions (Brockner & Wiesenfeld, 1996; Colquitt et al., 2001). There are firm indications that justice dimensions, particularly distributive and procedural justice types, do not act in isolation (Greenberg & Folger, 1983; Shapiro & Brett, 1993). Instead, studies have shown that interactions between procedural and distributive justice are associated with employee health, attitudinal and behaviour outcomes (e.g., Brockner & Wiesenfeld, 1996; Niehoff & Moorman, 1993). For example, Tepper (2001) reported stronger relationship between psychological distress and procedural justice (regarded as an input to secondary appraisal, or the appraisal of coping resources) when distributive justice (regarded as an input to the primary appraisal, or appraisal of experienced harm) was lower. This result is consistent with predictions derived from Lazarus’ stress process theory (Lazarus & Folkman, 1984) that people need to use coping information (procedural justice) under conditions of low distributive justice that prompts them to regard threats as stressful. Synergistic effects of distributive and procedural justice have also been found on performance. In particular, high levels of procedural justice in combination with low levels of distributive justice may increase task performance (Folger, Rosenfield, Hays, & Grove, 1978; Gilliland, 1994), while increases in OCB are more likely to occur when both procedural and distributive justice are high (Posthuma & Campion, 2005). The aim of testing for interactions between justice dimensions in the present study is to replicate this literature by assessing the interactional effects of procedural and distributive justice in relation to different
performance types. A better understanding of this interaction-based relationship could help companies respond to employee’s reaction to perceived unfairness in the workplace. For example, if employees perceive organisational rewards (distributive injustice) to be unfair, the improved perceptions of fair decision making (procedural justice) may help offset and alleviate the perceptions of unfair rewards.

2.4.3 In summary.

Section 2.4 provided a detailed assessment of existing stressor-performance research. This research provides firm evidence of the positive linear relationships between job control and social support and employee performance, and the negative linear association involving certain stressors including role conflict and role ambiguity. This research also indicates that associations between these stress-related working conditions and performance may be moderate at best. The other major aim of this section was to identify those aspects of the stressor-performance relationship where further research may be required. The first area where additional research is needed involved the relationship between stress-related working conditions and multiple performance measures. The review revealed that, although research has shown that in-role-based performance and extra-role-based performance are distinct, stress research has rarely differentiated between the two performance dimensions, resulting in a lack of knowledge about how stressors may be differentially associated with performance measures. The second limitation of existing stressor-performance literature is the heavy emphasis on cross-sectional studies. Moreover, there is a dearth of longitudinal studies that can establish the stability of stressor-performance relationships over a longer period of time (i.e., more than one year). The third area that has not been fully explored is the possibility that stress-related working conditions may have non-linear and/or interactional relationships with employee
performance behaviours. The majority of stressor-performance studies have been based on the assumption that working conditions have a direct, linear association with employee performance. Hence, there is a need to test for curvilinear and moderating pathways in this research.

The fourth limitation of existing stressor-performance research is the uncertainty regarding the strength and direction of the effects of workload demands on performance. Compared to other demand stressors such as role conflict, role ambiguity, and situational constraints, the results involving the workload measure of demands have been mixed. Research focusing on workload and performance has also relied heavily on laboratory-based studies, even though workload is often cited as a key demand across workplace settings and used frequently to examine health outcomes. The final area in which information about the stressor-performance relationship remains unclear is how organisational justice as a stress-related working condition may affect performance. Despite consistent support for justice as a strong stress-related working condition, stress-justice research has not yet explored the independent and synergistic effects of multidimensional justice measures on employee performance outputs.

The assessment of the stressor-performance literature has provided much of the impetus for the current investigation. The following section will discuss the aims and specific hypotheses of the current investigation, focusing particularly on how the JSM-justice framework will be used to clarify areas that have often been overlooked in stressor-performance research.
2.5 The Current Investigation

The job stress, organisational justice and performance literature reviewed in this chapter has informed the propositions to be examined in the current investigation. This review recognised that employee performance was underrepresented in job stress research, and highlighted the importance of focusing on specific stress-related working conditions (including job demands, job control, social support and organisational justice). The review also examined existing knowledge regarding the relationship between job performance and the working conditions under investigation, and uncovered five major areas that have often been overlooked in previous research. These areas include incorporating non-task behaviours such as OCB, examining the stability of a variety of stressor-performance relationships within a longitudinal study design, testing for interaction and nonlinear effects associated with the JSM and justice variables, investigating the role of workload demands more thoroughly, and taking into account multidimensional organisational justice. The limitations of previous stressor-performance research have led to the overall objective of the current investigation, which will be described in the following section.

2.5.1 Study aims.

The overall objective of the current study is to investigate the relationships between key working conditions and multiple measures of employee performance behaviours. The outcomes of this research are expected to provide a more detailed understanding of the stressor-performance relationships that, when considered in conjunction with other studies, will help to inform organisations’ stress management decisions. Information from the current investigation is also expected to be
particularly useful in modern economies in which the costs of stress are a serious and ongoing concern.

The literature reviewed in the current chapter has led to three specific aims for the current investigation. The first aim is to draw on two job stress models to investigate the relationships between key stress-related working conditions and employee performance. These two models are the JSM, incorporating workload demands, job control and social support (Karasek, 1979; Karasek & Theorell, 1990), and a multidimensional organisational justice model featuring distributive, procedural, interpersonal and informational justice measures (Colquitt, 2001). In view of the strong empirical, contextual and theoretical support for the JSM, as reviewed in the current chapter, this framework has been deemed a suitable model for examining possible stressor-performance connections. The multidimensional organisational justice theory constitutes the second guiding framework. Based on research indicating that justice variables were independent predictors of health-related outcomes even after controlling for the effects of the well-established job stressors (e.g., Elovainio et al., 2009; Kouvonen et al., 2008; Linna et al., 2011), the justice theory is expected to explain variance in performance above and beyond that explained by the JSM. There are also strong theoretical and contextual grounds for using a justice framework to examine the relationship between the stress-related working conditions experienced by operational policing personnel and employee performance. When assessing the stressor-performance relationships, the study will examine the main and interaction effects associated with the JSM-justice variables, whereas curvilinear relationships will be tested both to prevent spurious interactions (Fletcher & Jones, 1993) and to explore the possibility that the effects of working conditions may be attenuated at low and/or high levels (Warr, 1990).
The second aim of the current investigation is to include multiple forms of employee performance behaviours. These performance measures are task (in-role) performance and contextual (extra-role) performance in the form of OCB-I and OCB-O. The aim of investigating both in-role and extra-role performance types is to provide much-needed evidence on the differential effects of job stressors across multiple performance types. Previous research has reported mixed results regarding the stressor-performance relationship, in part because of the tendency to aggregate prescribed and discretionary performance, and the failure to consider the specific work-based antecedents of different performance dimensions. Ultimately, a more detailed understanding of the unique relationships work-based stressors and each performance type will help clarify the specific mechanisms through which enhanced employee performance can be achieved (Podsakoff et al., 2000).

The final aim of the current investigation is to use a longitudinal research design to clarify the stability of the stressor-performance relationships. Given limited longitudinal research employing time lags of more than one year, the present study will employ a longitudinal design with a 17-month time lag to clarify the strength of these effects over a longer period. The findings are expected to build on the results of cross-sectional studies and other longitudinal research involving shorter lag times (i.e., weeks or months). The longitudinal research design is also expected to provide much-needed opportunity to further test the predictive power of the JSM and organisational justice models over longer timespans.

2.5.2 Research hypotheses.

The review of the literature in this chapter has informed the development of several hypotheses with particular focus on identifying the extent to which stress-
related working conditions are associated with multiple measures of employee performance over time. The first set of hypotheses responds to the first aim of using the JSM-justice framework to investigate in-role and OCB performance. One of the key assumptions of the JSM is that work-based factors heavily influence employee health and productive behaviours in addition to personal factors, such as age and gender (Karasek & Theorell, 1990). Further, the strong independent links between justice (and injustice) and measures of job stress (Elovainio et al., 2002; Francis & Barling, 2005) suggest that justice dimensions would account for variance in performance-related outcomes over and above the effects attributed to the traditional variables of the JSM. Accordingly, the first two hypotheses for the current investigation are as follows:

Hypothesis 1a. Job demands, job control and social support are associated with performance measures after accounting for employee age, gender and length of employment.

Hypothesis 1b. Organisational justice variables are associated with performance measures after accounting for variance attributed to the JSM variables.

The next set of hypotheses focuses on the extent to which the main effects of each JSM variable may be differentially associated with the task and non-task forms of performance. Research suggests that stressors may have unique relationships with a variety of performance types (Bakker et al., 2004; Jex, 1998; Sullivan & Bhagat, 1992). Accordingly, a hypothesis is formed:

Hypothesis 2a. There are direct linear relationships between the individual components of the JSM and the two measures of employee performance.
OCB literature has suggested that employees are likely to reduce their involvement in non-task performance rather than reducing their prescribed performance when confronted with stressful situations (Bergeron, 2007; Eatough et al, 2011; Organ, 1997; Schnake, 1991). That is, the negative direct impact of demands (Karasek, 1979) would be stronger for non-task performance. This explanation is supported by studies that found that hindrance stressors, defined as working conditions that tend to lead to negative outcomes (Boswell et al., 2004; LePine, LePine, & Jackson, 2004), were related more strongly with OCB than with task or objective performance measures (Wallace et al., 2009). The rationale is also applicable to Chen (2009), whose study examined task and contextual performance in the law enforcement stress context and reported that job stressors were associated more strongly with contextual performance relative to task performance.

Accordingly, the next hypothesis for predicting differential relationships between psychosocial working conditions and performance measures is as follows:

Hypothesis 2b. There is a direct negative relationship between job demands on performance, and the relationship is stronger with OCB than with task performance.

The positive independent effects associated with job control and social support on each performance type can be hypothesised according to the COR theory (Hobfoll, 1998) and the resource exchange rule (Blau, 1964). These theories compliment and extend the transactional approach to job stress that assumes that individuals continually assess their resources in transacting with the environment to cope with potential stressors (Lazarus & Folkman, 1984). As described in Section 2.3.2.3, the COR theory suggests that key working conditions including job control,
social support and organisational justice represent work-based resources that employees require to perform their jobs in the face of heightened job demands. To preserve and increase these resources, workers enter into exchange relationships with other workers and the organisation as a whole. Accordingly, transactions that create obligations for mutual benefits are formed, and people continue to balance what they are given with what they reciprocate. Without reciprocity, the exchange relationships cannot be sustained (Gouldner, 1960).

Exchange relationships could be described either as economic exchanges that are enforceable because they are based on prescribed, contractual relationships, or as social exchanges that cannot be regulated because they are formed through unspecified, discretionary obligations (Blau, 1964). The contrast between social exchange and economic exchange suggests that job control and social support may operate within different exchange relationships. Control provides more economic benefits, thus it may stimulate economic exchange to a larger extent. Conversely, social support is valued for its socio-emotional benefits and may operate mainly within a social exchange relationship. As such, exchanges generated from job control, which is authority that comes with the position given by the organisation (French & Raven, 1959; Jex, 1998; Karasek & Theorell, 1990), should induce task performance relatively more than OCB due to the contract-based characteristics of both variables. In contrast, both social support, which is derived from mutual associations with supervisors and colleagues, and OCB are discretionary, and they may be seen to link more closely within a social exchange relationship (Chiaburu & Harrison, 2008; Organ et al., 2006). In line with this rationale, the following hypotheses were formed:
Hypothesis 2c. There is a positive direct relationship between job control on performance, and the relationship is stronger with task performance than with OCB.

Hypothesis 2d. There is a positive direct relationship between social support and employee performance, and the relationship is stronger with OCB than with task performance.

Similar to job control and social support, positive fairness perceptions may be classified as work-based resources that employees rely upon to perform their job and ensure other valued resources such as continued employment with the organisation (Hobfoll, 1998). Consequently, theories of resources (Demerouti et al., 2001; Hobfoll, 1998) and reciprocal exchanges (Blau, 1964; Gouldner, 1960) will once again inform hypotheses involving the unique main effects of organisational justice types on multiple performance types. As described in Section 2.3.2.3, distributive justice is an economic resource because it is concerned with rewards that the organisation controls. Distributive justice is then expected to have a stronger relationship with task performance behaviour, given that the organisation is the main source of both variables (Ball, Klebe Trevino, & Sims, 1994). Assumptions about the exchange relationships in relation to procedural, interpersonal and informational justice in particular were drawn on the agent-system model introduced by Bies and Moag (1986) and extended by Masterson, Lewis, Goldman and Taylor (2000). Specifically, the reward distribution process is concerned with exchanges between employees and the larger organisation (the system). Therefore, the fair process (procedural justice) is an economic resource that is likely to be reciprocated with system-referenced outcomes, which in this case is task performance. Conversely,
interpersonal and informational justice types involve interpersonal treatments and communications, and they may be regarded as socio-emotional resources that operate within social exchange relationships (i.e., with an agent). Therefore, it is expected that employees will reciprocate by increasing their discretionary behaviour when their exchanges with their supervisor (the agent) involve fair treatments and sufficient information. The above rationale led to the following hypotheses:

Hypothesis 3a. There are direct linear relationships between the individual components of organisational justice and the two measures of employee performance.

Hypothesis 3b. There is a positive direct relationship between distributive justice and performance, and the relationship is stronger with task performance than with OCB.

Hypothesis 3c. There is a positive direct relationship between procedural justice and performance, and the relationship is stronger with task performance than with OCB.

Hypothesis 3d. There is a positive direct relationship between interpersonal justice and performance, and the relationship is stronger with OCB than with task performance.

Hypothesis 3e. There is a positive direct relationship between informational justice and performance, and the relationship is stronger with OCB than with task performance.

The relationship between stress-related working conditions and employee performance will be examined in more detail by testing for interactions among the JSM and justice variables. The JSM interaction model suggests that job demands
negatively affect performance, but that the impact becomes less severe when employees can exercise job discretion (Karasek, 1979) and/or receive support from colleagues (Johnson & Hall, 1988). However, the extent to which employee performance is influenced by stress-related conditions may vary according to the type of performance under investigation. As mentioned earlier, the literature has shown that employees affected by stress are likely to manipulate extra-role behaviours, which are largely discretionary, to avoid more serious repercussions associated with task performance behaviours, which are prescribed and mandated by the organisation (Bergeron, 2007; Organ, 1997). In light of this rationale, hypotheses involving the JSM interactions were formed:

Hypothesis 4a. There is a two-way interaction of demands and control on performance, such that the negative relationships between high demands and performance are reduced under conditions of high control.

Hypothesis 4b. There is a two-way interaction of demands and social support on performance, such that the negative relationships between high demands and performance are reduced under conditions of high social support.

Hypothesis 4c. There is a three-way interaction of demands, control and support on performance, such that the negative relationships between high demands and performance are reduced under conditions of high control and high social support.

Hypothesis 4d. The impact of the JSM interactions is stronger on OCB than on task performance.

Interactions between procedural and distributive justice types will be investigated with the aim of improving prediction of justice-performance
relationships (Brockner & Wiesenfeld, 1996; Colquitt et al., 2001). There are firm indications of interactions between distributive and procedural justice types that affect employees’ attitudinal and behaviour outcomes (Brockner & Wiesenfeld, 1996; Niehoff & Moorman, 1993). Also, high levels of procedural justice in combination with low levels of distributive justice have been found to increase task performance (Folger et al., 1978; Gilliland, 1994), while OCB is more likely to be influenced when both procedural and distributive justice are high (Posthuma & Campion, 2005). On the basis of these findings, the following hypotheses were formed:

Hypothesis 5a. Low distributive justice and high procedural justice interact to produce task performance.

Hypothesis 5b. High distributive justice and high procedural justice interact to produce OCB.

The other set of analyses that may clarify the relationships between the JSM-justice working conditions and employee performance involves nonlinearity. Curvilinear hypotheses of leading stress theories such as Yerkes and Dodson theory (1908) and Warr’s Vitamin Model (1987) guided the hypothesis on curvilinear relationships between stress-related working conditions and performance types. These theories suggest that the nature of the link between occupational stress and employee performance depends on how manageable the demands are for employees. Demands that become too difficult to cope with result in lowered performance, while demands experienced at an optimal level lead to higher levels of performance. In other words, too little or too much stress may impair performance, and the relationship between stress and performance assumes an inverted U-shape. The non-
linear hypothesis is also supported by empirical studies that confirm the need to examine nonlinear relationships (e.g., de Jonge & Schaufeli, 1998; Fletcher & Jones, 1993; Warr, 1990), and past suggestions that failure to test for nonlinear effects could result in spurious interactions being identified (Fletcher & Jones, 1993; Morrison & Payne, 2001). In view of the above theoretical and empirical rationale, the following hypotheses were developed:

Hypothesis 6a. There are inverse U-shaped relationships between the individual components of the JSM and the two measures of employee performance.

Hypothesis 6b. There are inverse U-shaped relationships between the individual components of justice theory and the two measures of employee performance.

Finally, the stability of the aforementioned relationships will be examined over time. Research indicates that relationships involving chronic psychosocial conditions are enduring (Zapf et al., 1996), and effects have been found to remain after one year (de Lange et al., 2004). To further investigate these prolonged effects, it is important to observe whether the effects are constant over a longer period, for example, 18 months (Sonnentag & Frese, 2003). Accordingly, the final sets of hypotheses address the associations between predictors at the first time point (Time 1) and the outcomes at the second time point 17 months later (Time 2). These hypotheses are as follows:

Hypothesis 7a. Job demands, job control, social support and justice perceptions experienced at Time 1 are associated with performance measures
at Time 2 after accounting for employee age, gender and length of employment at Time 2 and performance scores at Time 1.

Hypothesis 7b. Organisational justice variables at Time 1 are associated with performance measures at Time 2 after accounting for variance attributed to JSM variables at Time 1.

Hypothesis 8a. There are direct linear relationships between the individual components of the JSM at Time 1 and the two measures of employee performance at Time 2.

Hypothesis 8b. There is a negative direct relationship between job demands at Time 1 on performance at Time 2, and the relationship is stronger with OCB than with task performance.

Hypothesis 8c. There is a positive direct relationship between job control at Time 1 and performance at Time 2, and the relationship is stronger with task performance than with OCB.

Hypothesis 8d. There is a positive direct relationship between social support at Time 1 and employee performance at Time 2, and the relationship is stronger with OCB than with task performance.

Hypothesis 9a. There are direct linear relationships between the individual components of organisational justice at Time 1 and the two measures of employee performance at Time 2.

Hypothesis 9b. There is a positive relationship between distributive justice at Time 1 and performance at Time 2, and the relationship is stronger with task performance than with OCB.
Hypothesis 9c. There is a positive direct relationship between procedural justice at Time 1 and performance at Time 2, and the relationship is stronger with task performance than with OCB.

Hypothesis 9d. There is a positive direct relationship between interpersonal justice at Time 1 and performance at Time 2, and the relationship is stronger with OCB than with task performance.

Hypothesis 9e. There is a positive direct relationship between informational justice at Time 1 and performance at Time 2, and the relationship is stronger with OCB than with task performance.

Hypothesis 10a. There is a two-way interaction of demands and control at Time 1 on performance at Time 2, such that the negative relationships between high demands and performance are reduced under conditions of high control.

Hypothesis 10b. There is a two-way interaction of demands and social support at Time 1 on performance at Time 2, such that the negative relationships between high demands and performance are reduced under conditions of high social support.

Hypothesis 10c. There is a three-way interaction of demands, control and support at Time 1 on performance at Time 2, such that the negative relationships between high demands and performance are reduced under conditions of high control and high social support.

Hypothesis 10d. The impact of the JSM interactions at Time 1 is stronger on OCB at Time 2 than on task performance at Time 2.
Hypothesis 11a. Low distributive justice and high procedural justice at Time 1 interact to produce task performance at Time 2.

Hypothesis 11b. High distributive justice and high procedural justice at Time 1 interact to produce OCB at Time 2.

Hypothesis 12a. There are inverse U-shaped relationships between the individual components of the JSM at Time 1 and the two measures of employee performance at Time 2.

Hypothesis 12b. There are inverse U-shaped relationships between the individual components of the justice models at Time 1 and the two measures of employee performance at Time 2.

2.5.3 In summary.

Section 2.5 specified the aims and the hypotheses of the current investigation based on a comprehensive review of the job stress, organisational justice and performance literature. The overall aim of the current investigation is to examine if and how stress-related working conditions are longitudinally associated with multiple performance behaviours. In order to achieve this aim the current investigation will draw on the combined JSM-justice framework, include multiple performance measures, test for linear, nonlinear and interaction effects, and employ a longitudinal research design. Several hypotheses were developed based on the literature and aforementioned aims, and two studies will be undertaken to test these hypotheses. The first study is cross-sectional and will examine the synchronous relationships hypothesised in Hypotheses 1 to 6. The cross-sectional study will also provide the baseline for determining the stability of results over time. The method, results and discussion of results of the cross-sectional study will be presented in the
next chapter (Chapter 3). The second study will be longitudinal, and this study has been designed to determine whether relationships found at one point carry over to the next point in time. The longitudinal study will investigate Hypotheses 7 to 11, and this study will be discussed in Chapter 4. Chapter 5 will discuss general findings and implications based on trends identified in both studies with particular reference to trends that remain over time.
Chapter Three: The Cross-Sectional Study (Study 1)

This chapter focuses on the cross-sectional phase of the current investigation (Study 1) and will report on the results of statistical analyses applied to Time 1 (T1) data.

The purpose of investigating the cross-sectional relationships between stress-related working conditions and performance outcomes is twofold. The first aim is to establish whether these variables have synchronous associations (cf., Sonnentag & Frese, 2003) in the direction stated in Hypotheses 1 to 6. The second aim is to provide a baseline from which to compare the lagged results contained in the longitudinal study (see Chapter 4).

The current chapter has been organised into three sections. The first section focuses on the method used to collect the data, and includes a detailed description of data collection procedures, participants and study measures. The second section presents the results of the cross-sectional study. This section includes details about the procedure for data screening and assumption testing for multiple regression analyses prior to presenting the correlation and regression results. The third section presents a discussion of the results from the cross-sectional analysis.

3.1 Method

The following sections describe the method used to undertake Study 1. The aim of these sections is to provide the background of the project, and discuss the data collection procedures, participants, measures used and analysis technique employed
to investigate the relationship between the JSM-justice working conditions and job performance measures, as specified in Hypotheses 1 to 6.

3.1.1 Background of the study.

The current project (Studies 1 and 2) was undertaken in conjunction with Victoria Police, a state-funded law enforcement agency based in the Australian State of Victoria. Victoria Police first made contact with the supervisory panel of the author of the thesis prior to the author involvement in the project. The organisation was concerned about the impact of stressful working conditions on the health and performance of their members, and sought assistance from the supervisory panel in undertaking this research. The author of the thesis had a strong interest in the behavioural effects of stressful working conditions and was subsequently given primary responsibility for undertaking the stressor-performance portion of the project.

With 15,500 employees, including 8,000 operational police officers (Victoria Police, 2011), Victoria Police is one of the largest public sector agencies in the state. Like many other Australian civil services, Victoria Police began implementing NPM-style reforms in the early 1990s. In the six years prior to the current investigation, the organisation had introduced a range of changes designed to increase service outputs, enhance efficiencies and improve accountability to police command, governments, and community groups. These organisation-wide reforms included widespread organisation restructuring, the introduction of a comprehensive performance management system, heightened emphasis on achieving key strategic targets and tighter cost control measures (Bryett, 1999; Coyle-Shapiro & Kessler, 2000; Noblet & Rodwell, 2009a).
An application for ethics approval was submitted to and approved by Deakin University Human Research Ethics Committee, Deakin University, Australia. The application outlined the objectives, background, research method and duration of the project. The application also provided details about research procedures, including the solicitation of personal, normally private, information, the obtaining of the informed consent of participants, and precautions taken to protect the identity and consent of all participants.

3.1.2 Data collection procedures.

Data was collected using a self-report questionnaire sent to employees’ work addresses via the organisation’s internal mail system. Reminder notices were sent to all employees five and 10 days after the initial distribution. The questionnaire was accompanied by a cover letter from the organisation’s Director of Human Resources. The letter explained the rationale for undertaking the study, described procedures to protect respondent confidentiality, and invited employees to take part in the survey. Participants were asked to complete the questionnaire in their own time and without the influence of colleagues or other staff members. Participants were also instructed to ignore any questions with which they felt uncomfortable.

Procedures to protect confidentiality were as follows. Participants returned their questionnaires directly to the researchers in stamped, self-addressed envelopes. The organisation was not aware of who returned their surveys. Employee names were not requested in the survey, and questions relating to the participant’s background only sought general demographic information (e.g., age and tenure range). Only aggregated data were analysed, and individual participants could not be identified in any reports or publications resulting from the research. Respondents
were requested to provide their employee number to enable data tracking and recording of changes in their perceptions over time. However, this was optional. The tracking was an important mechanism for undertaking a longitudinal analysis of the data (see Chapter 4). Given that the organisation did not have access to the completed surveys and the researcher only had the employee numbers (not employee names), the risk of individual employees being identified by the organisation and/or the researchers was minimal. A copy of the letter outlining procedures for protecting confidentiality can be found in Appendix 1.

3.1.3 Participants.

Participants taking part in the current investigation were uniformed police officers employed by Victoria Police. Due to time and budgetary constraints, the current investigation focused on policing personnel based in one region within Victoria Police. All 1,828 uniformed employees from this region were invited to participate in the study. The officers’ main tasks involved day-to-day operations typical of police forces in western democracies. Completed surveys were received from 640 operational police officers, representing a response rate of approximately 35 per cent. This return rate was close to the norm of 36 per cent in most occupation-based studies (Baruch, 1999). Further, the response rate was considered satisfactory, given that the research was performed using a self-administered survey conducted in an organisation (Roth & Bevier, 1998), and that participants were from an intensely researched group in the area of stress (Bourbonnais et al., 2007; Brown & Campbell, 1990; Shane, 2010). A recent study conducted on a large group of frontline police officers, also in Victoria, reported a response rate of 22 per cent (Hall et al., 2010).
Due to the modest response rate, nonresponse bias was systematically checked, and results indicated that nonparticipants did not differ from participants with regard to gender, age, year of service and rank. The researcher also sought to establish the representativeness of the sample by comparing the sample demographic profile with that from previous studies and published demographic data involving Victoria Police. The comparison revealed that the sample demographics were comparable to those of the police samples (e.g., Armeli et al., 1998; Brough, 2004; Davey et al., 2000; Hall et al., 2010) and the Victoria Police population (Victoria Police, 2011). The demographic data showed that a large majority of respondents were male (82.8 per cent), worked full-time (93.4 per cent) and had been with the organisation for 10 years or more (85 per cent). Almost half of the respondents were at the middle-rank (Senior Constable–Sergeant) level (46.8 per cent), while close to two-thirds (63 per cent) were 40 years or older.

3.1.4 Measures.

A number of instruments that have been found to be valid and reliable measures of the variables under investigation across various settings were used to collect data about the study variables. An exception was the recently developed organisational justice scale (Colquitt, 2001), which has not been as extensively tested but was found suitable to the current study due to its multiple dimensions. The full measures can be found in Appendix 2. These measures were as follow:

*Job demands.* The quantitative workload scale developed by Caplan, Cobb, French, Harrison and Pinneau (1980) was used to measure job demands in the current investigation. The 11-item scale measures physical and psychological workload and takes into account both the amount of work employees have to
perform, and the pace with which it is performed. In addition, the scale covers recovery period, hence it was considered to capture a more complete experience of work demands than other similar scales. Responses were recorded on a five-point scale ranging from ‘rarely’ (5) to ‘very often’ (1), with higher scores indicating higher workload demands. Sample items include: ‘How often does your job require you to work very fast?’ and ‘How many tasks or responsibilities do you have?’.

**Job control.** Job control was measured using a nine-item scale developed by Karasek (1985). The scale measures the degree of work-related decision latitude and opportunities to acquire new skills. Responses were recorded on a five-point scale ranging from ‘strongly disagree’ (1) to ‘strongly agree’ (5), where higher scores indicated greater job control. Sample items include: ‘My job requires me to be creative’ and ‘I have a lot of say about what happens on my job’.

**Social support.** Prior research suggests that the sources (e.g., at work and outside work) and forms (e.g., emotional and instrumental) of social support should be distinguished, as the effectiveness of different sources and types of support can vary according to the extent to which they match the needs activated by the stressor (Cutrona, 1990; Sarason, Sarason, & Pierce, 1990). Support in life and support at work have been found to have different effects on stress (LaRocco et al., 1980; Seers, McGee, Serey, & Graen, 1983), with support at work generally being a better predictor of occupational stress (Karasek, Triantis, & Chaudhry, 1982; Kobasa & Puccetti, 1983; Morris et al., 1999). Consequently, a social support scale incorporating multiple forms and sources of support (Etzion, 1984) was used in the current investigation. The scale contains nine items, seven of which require two answers. One answer relates to the social support employees receive in their work
environment (from supervisors and colleagues) and the other to support from non-
work sources (e.g., family and friends). The two sets of responses form separate
subscales: support at work and support outside work. Responses were recorded on a
seven-point scale ranging from ‘very little’ (1) to ‘very much’ (7), with higher
scores indicating higher support. Sample items include: ‘To what extent do you get
appreciation and recognition for what you do?’ and ‘To what extent is support and
advice available to you when you are experiencing difficulties?’.

Organisational justice. The organisational justice measure developed by
Colquitt (2001) was chosen because it distinguishes multiple forms of fairness
perceptions at work, including distributive justice, procedural justice, interpersonal
justice and informational justice. Responses were recorded on a five-point scale
ranging from ‘very often’ (1) to ‘rarely’ (5), with a high score reflecting a high level
of perceived fairness in the organisation. Sample items include: ‘Do your pay,
promotions, and other benefits reflect the effort you put into your work?’ and ‘Have
they treated you in a polite manner?’. The factor structure of this scale was analysed,
and the results of the analysis are reported in Section 3.1.5.

Job performance. Job performance in the form of task performance behaviour,
organisational citizenship behaviour directed at the organisation (OCB-O) and
organisational citizenship behaviour directed at the individuals (OCB-I) was
measured using the 21-item job performance scale developed by Williams and
Anderson (1991). Responses were recorded on a seven-point scale ranging from
‘strongly disagree’ (1) to ‘strongly agree’ (7), with higher scores indicating higher
levels of task performance behaviour, OCB-I and OCB-O. Sample items include ‘I
help others who have been absent’ and ‘I give advanced notice when unable to come to work’.

Demographics. Three demographic variables—age, gender and length of employment—were included as control variables, due to them being identified as possible confounders for the relationship between job characteristics and the stress-outcome variables (Van Vegchel, de Jonge, & Landsbergis, 2005). These demographic variables have also received much attention in police stress research, although reports on their confounding effects are varied. For example, some studies asserted that aging police were more vulnerable to stress (e.g., Deschamps et al., 2003; Gershon et al., 2002; Martinussen et al., 2007), whereas other studies found that older police officers felt less stress than their younger counterparts (e.g., Chen, 2009; Johnson et al., 2005; Maslach, Schaufeli, & Leiter, 2001). Some studies did not find the impact of these demographic variables in the stress context (e.g., Biron & Bamberger, 2010; Greene & del Carmen, 2002; Koslowsky, Caspy, & Lazar, 1990). In relation to gender, some studies found that males were less vulnerable to stress as females (Bridger et al., 2007; Collins & Gibbs, 2003), and suggested the need to identify additional stressors for women (McCarty et al., 2007; Morash, Kwak, & Haarr, 2006). However, other studies reported that workplace problems and emotional exhaustion could affect male employees more than their female counterparts (e.g., Flavin & Bennett, 2001; Norvell, Hills, & Murrin, 1993; Purvanova & Muros, 2010). In studies relating to performance measures, there are surprisingly few investigations focusing on the effects of demographic characteristics, although there is a theoretical basis for including these variables (Organ & Ryan, 1995; Podsakoff et al., 2000). For example, a male preference for equity would influence men to favour performing OCB-Os such as
conscientiousness (obeying rules beyond the minimum requirements), whereas women’s heightened empathetic concern would incline them more towards demonstrating altruism by helping a specific other (Davis, 1983; Kidder & Parks, 1993). Taken together, it was deemed appropriate to control for demographic characteristics to prevent the confounding effects that may arise in the examination of the relationships between key working conditions and employee performance. Accounting for the key demographic variables will also help to establish whether demographic variables are implicated in the stressor-performance relationship.

3.1.5 Factor analyses of organisational justice scales.

The current investigation explored the factor structure of the multidimensional organisational justice measure proposed by Colquitt (2001) before including the measure in the correlation and regression analyses. A distinct characteristic of the Colquitt measure is that it was designed to be applicable across work settings, and to be used for simultaneous measurement of multiple justice dimensions (Colquitt, 2001). However, the Colquitt measure is relatively new, and its psychometric properties have not been examined as extensively as other measures used in the current investigation. Moreover, previous research that specifically examined the factor structure of the measure had not agreed on the appropriate number of factors (Maharee-Lawler et al., 2010). Originally, items in the measure were subject to confirmatory factor analysis (CFA) with maximum likelihood (ML) extraction method (Colquitt, 2001). Four justice dimensions (procedural, distributive, interpersonal and informational) were found to constitute the organisational justice construct, with satisfactory fit with both undergraduate students and manufacturing employees. A small number of subsequent studies applied a similar CFA approach and found that the four-dimensional justice structure fit their data sets as well (e.g.,
Andersson-Straberg et al., 2007; Bell et al., 2006; Judge & Colquitt, 2004; Streicher et al., 2007). In contrast, Spell and Arnold (2007) identified a three-dimensional structure collapsing interpersonal and informational justice, while Blakely, Andrew and Moorman (2005) found a one-dimensional structure of justice more appropriate to their part-time management student samples.

The variation in the number of justice factors may be attributed to differences in the samples and the researcher’s decisions on measurements (Thompson & Vacha-Haase, 2000). Given that samples from most previous studies examining the factor structure of the Colquitt measure involved students or private-sector employees, there is a need to examine the factor structure of this scale in a public sector context (Maharee-Lawler et al., 2010). Further, none of the studies cited above reported the use of alternative factoring techniques, such as an exploratory factor analysis (EFA) approach (Pedhazur & Schmelkin, 1991) or a standard error scree test (Zoski & Jurs, 1996). EFA, conducted initially or in tandem with CFA, may help specify a certain number of factors (Fabrigar, Wegener, MacCullum, & Strahan, 1999). A standard error scree test involving calculating the standard error of estimates for a set of eigenvalues to determine the cut-off in the screeplot (Zoski & Jurs, 1996) may be administered in conjunction with other approaches to ascertain the appropriate number of factors. Given this review, the current investigation will explore the dimensionality of organisational justice by applying an EFA approach and a standard error scree test to the Colquitt’s justice measure. It was expected that the current public sector sample would also provide the opportunity to assess the extent to which the four-dimensional factor structure is relevant to a broader range of sectors.
In light of the aim of clarifying the justice measure, EFA using SPSS 17.0 (SPSS Inc., 2008) was applied to the organisational justice measure, which was originally found to consist of four justice dimensions; namely distributive, procedural, interpersonal and informational justice (Colquitt, 2001). The EFA results revealed four components with the eigenvalues of 8.76, 2.40, 1.47 and 1.02, explaining 43.8 per cent, 12.0 per cent, 7.3 per cent and 5.1 per cent of the variance, respectively. The total explained variance was 68.2 per cent. The four-factor solution was further subjected to oblimin rotation for a clearer interpretation of the factors. The loading of each of the fairness items in the model was shown to be strong on relevant components (see the 4-factor column of Table 3.1).

Although the findings revealed the same number of factors reported by the author of the organisational justice measure (Colquitt, 2001), the results contradicted the original findings in two key areas. First, interpersonal and informational justice items did not separate into two components. Second, the procedural justice items split into two components. The first procedural-justice component consisted of items 3, 4, 5 and 7 (see item wording in Appendix 2). The second procedural-justice component consisted of items 1, 2 and 6, and was considered a new component. To further verify these findings, a standard error scree test was applied (Zoski & Jurs, 1996). An examination of the standard error scree revealed that up to eight factors may be retained (see Table 3.2). Therefore, a five-factor model was tested, revealing the four dimensions found in past studies utilising the same justice measure (Colquitt, 2001) plus the new procedural-justice-based component (see the 5-factor column of Table 3.1). The five-factor model had the eigenvalues of 8.76, 2.40, 1.47, 1.02 and .98, explaining 43.78 per cent, 11.99 per cent, 7.33 per cent, 5.07 per cent and 4.78 per cent of the variance, respectively. The cumulative variance explained
was raised from 68.2 per cent in the four-factor model to 73 per cent in the five-factor model.
Table 3.1

Factor loadings of organisational fairness items (n = 640).

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Note. Underlined values indicate the loading that is the highest for each item.
Despite the eigenvalue slightly below 1 for the new component (cf., Kaiser, 1960), the aim of exploring the dimensionality of Colquitt’s organisational justice measures led to the decision to retain the five components of the justice measure for subsequent correlations and regression analyses. The aim of doing so was to determine whether having all five components could add any value to the overall justice scale. The five retained components were distributive justice, interpersonal justice, informational justice and two forms of procedural justice. The first form of procedural justice was termed procedural-core justice ($\alpha = .88$) to reflect the closer association with the original procedural fairness construct found in previous studies (e.g., Colquitt, 2001; Judge & Colquitt, 2004). The second form was called
procedural-voice justice ($\alpha = .69$) to reflect the concept of voice effect, or the extent to which employees have a say in decision-making processes (Folger, 1977). The five-factor model had an identical structure to the five-factor results found in Jepsen and Rodwell (2009) in their analyses of employees from a variety of occupations. Procedural-voice justice was labelled so to suggest its potential as an additional form of procedural justice, and the possible connection with the concept of voice effect (Folger, 1977). Voice was based on the concept of process control (i.e., having a say in the organisational decision-making procedures), which is different from decision control (i.e., the actual opportunity to control the decision outcomes). However, both are criteria for procedural justice (Thibaut & Walker, 1975). The five-component model was further subject to CFA using AMOS 7.0 (SPSS Inc., 2006) to determine the fit of the model. The model provided an acceptable fit to the data, with $\chi^2 (160, n = 616) = 546.70, p < 0.001, \chi^2/df = 3.42$, IFI = .96, CFI = .96, and RMSEA = .063 (.057, .068).

With the five-component justice scale, the current investigation applied the proposed constructs to examine Hypotheses 1 to 6 stated in Chapter 2. The results of the correlation and regression analyses are presented next, followed by a discussion of the results.

### 3.1.6 Statistical analyses.

The current investigation applied bivariate correlation and hierarchical multiple regression to examine the relationships among the variables under investigation. This section describes the data screening and assumption testing undertaken prior to running the regressions, as well as the step-by-step procedures used when conducting the regressions themselves.
3.1.6.1 Data screening and assumption testing for multiple regressions.

Multiple regression and structural equation modelling (SEM) were initially considered, and regression was finally chosen for theoretical and practical reasons (cf., Tabachick & Fidell, 2007). The theoretical reason for using multiple regression analysis was that this type of analysis was designed specifically to explore the associations among several observed variables. This capacity of the regression technique was considered most suitable to the major purpose of the current study, which was to evaluating the relationships between stressors and performance measures. While SEM is also capable of assessing associations among variables, the technique is essentially a confirmatory technique for testing the fit of an estimated model, and the technique takes into account both observed and latent variables. SEM therefore does not align with the main aim of the current investigation as well as multiple regression does, and the technique may complicate the analysis unnecessarily.

The practical reason for selecting regression analysis over SEM for the current investigation was that regression has been widely used in nonexperimental research, and there is better understanding about the assumptions underlying the technique, its strengths, and its limitations (Green, 1991; Tabachick & Fidell, 2007; more refs). SEM was developed more recently, and knowledge about how and when it is appropriate to apply SEM has only started to accumulate (Tabachick & Fidell, 2007). For example, it is widely accepted and thoroughly discussed (Green, 1991; Tabachick & Fidell, 2007; more refs) that a simple rule of thumb for calculating the ratio of cases to the number of independent variables that the multiple regression technique requires is $N \geq 50 + 8m$ (where $m$ is the number of independent variables) whereas the required sample size for SEM is still much debated in the literature.
Prior to running the analyses, data screening and assumption testing for multiple regression were undertaken following the procedures proposed by Tabachnick and Fidell (2007). Outliers that had standardised residual values above ± 3.3 were deleted from the data set, leaving an effective sample size of 640. The sample size was found to be appropriate, given the formula for calculating sample size of $n > 50 + 8m$ (where $m =$ number of independent variables). Significance tests for skewness and kurtosis, and visual evaluation of frequency histograms and scatterplots were applied to assess normality, linearity and homoscedasticity of the data and variables. These screening techniques indicated that OCBI, OCB-O and job control, when regressed onto OCB-O, were negatively skewed. These variables were then transformed using reflect and logarithm transformation to improve analysis and aid in further reducing the effect of outliers (Tabachnick & Fidell, 2007). After the transformations, the tests for normality, linearity and homoscedasticity of the data and variables indicated that these assumptions were met.

### 3.1.6.2 Steps for hierarchical multiple regressions.

Hierarchical multiple regression analyses using SPSS 17.0 (SPSS Inc., 2008) assessed the additive, curvilinear and interaction effects associated with the predictor variables. When testing for curvilinear and interaction effects, specific procedures were followed (Aiken & West, 1991; Cohen, Cohen, West, & Aiken, 2003). The
relevant variables were first ‘centred’ to reduce multicollinearity. This centering process involved creating a new variable, whereby the overall mean for each measure was subtracted from every respondent’s score for the particular measure. Curvilinearity was tested by squaring the centred terms (e.g., centred job control$^2$), while the interaction terms were created by multiplying the relevant predictor variables, for example, centred workload x centred job control.

The order in which the study variables were entered into the multiple regression analyses was as follows. Age, gender and length of employment were entered first, to control for their effects (Hypothesis 1a). Controlling for these effects was important for two reasons. First, the JSM hypothesises that psychosocial conditions determine employee outcomes above and beyond personal characteristics (Karasek & Theorell, 1990). Second, previous research has reported the confounding effects of demographics on stress and its outcomes (Bosma et al., 1997; Kivimaki et al., 1997). Effects of the JSM variables (demand, job control, social support at work, and non-work support) were entered next. Specifically, the terms for the main effects of the JSM variables were entered in the second step to investigate Hypothesis 2. The third step consisted of the squared terms representing curvilinearity for the JSM variables (Hypothesis 6), followed by the steps for the two-way and three-way interaction terms of these variables (Hypothesis 3). Terms for the JSM effects were entered before those involving justice items because justice was expected to explain variance over and above those accounted for by the JSM variables (Hypothesis 1b). The final three steps saw the entering of the terms for effects of justice dimensions, starting with the five fairness dimensions (Hypothesis 4), followed by their squared terms (Hypothesis 6) and the two-way interaction terms involving distributive justice and procedural justice measures (Hypothesis 5).
3.2 Results

The following sections present the results of the current cross-sectional study. These results were derived from correlation and regression analyses using SPSS 17.0 (SPSS Inc., 2008).

3.2.1 Descriptive statistics, correlations and reliability coefficients.

The descriptive statistics, correlations and reliability coefficients of the variables in the study are shown in Table 3.3. All of the scales had fair to good internal consistency, with the Cronbach alpha coefficients ranging from .69 to .92.

The correlation coefficients presented in Table 3.3 show a large number of significant relationships between the study variables. Most of these associations were weak to moderate in strength; that is, the Pearson correlation coefficient ($r$) fell between .10 and .49 (Cohen, 1988). Very few showed strong relationships exceeding .50 (Cohen, 1988). Further, none had a correlation value of more than .70, indicating that multicollinearity was unlikely to cause statistical problems in formulating a model in the subsequent regression analyses (Tabachnick & Fidell, 2007).
Table 3.3

**Descriptive statistics, correlations and reliability coefficients of cross-sectional data (n = 640).**

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<th></th>
<th>Mean</th>
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<td>.29**</td>
<td>(.83)</td>
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<td>3. Work support</td>
<td>41.81</td>
<td>.43</td>
<td>-.15**</td>
<td>.38**</td>
<td>(.89)</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>4. Non-work support</td>
<td>50.32</td>
<td>.40</td>
<td>-.02</td>
<td>-.02</td>
<td>.23**</td>
<td>(.87)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>5. Procedural-core</td>
<td>10.05</td>
<td>.15</td>
<td>-.10*</td>
<td>.18**</td>
<td>.42**</td>
<td>.12**</td>
<td>(.90)</td>
<td></td>
<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td>6. Procedural-voice</td>
<td>6.84</td>
<td>.10</td>
<td>-.06</td>
<td>.21**</td>
<td>.40**</td>
<td>.13**</td>
<td>.58**</td>
<td>(.69)</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>7. Distributive justice</td>
<td>9.50</td>
<td>.16</td>
<td>-.23**</td>
<td>.04</td>
<td>.35**</td>
<td>.12**</td>
<td>.47**</td>
<td>.44**</td>
<td>(.87)</td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>8. Interpersonal justice</td>
<td>13.76</td>
<td>.14</td>
<td>-.05</td>
<td>.16**</td>
<td>.41**</td>
<td>.13**</td>
<td>.53**</td>
<td>.39**</td>
<td>.32**</td>
<td>(.91)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>9. Informational justice</td>
<td>14.66</td>
<td>.18</td>
<td>-.10*</td>
<td>.15**</td>
<td>.45**</td>
<td>.14**</td>
<td>.52**</td>
<td>.47**</td>
<td>.39**</td>
<td>.58*</td>
<td>(.91)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10. OCB-I</td>
<td>39.82</td>
<td>.20</td>
<td>.17**</td>
<td>.23**</td>
<td>.22**</td>
<td>.01</td>
<td>.03</td>
<td>.06</td>
<td>.02</td>
<td>.05</td>
<td>.03</td>
<td>(.84)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>11. OCB-O</td>
<td>41.49</td>
<td>.19</td>
<td>.28**</td>
<td>.26**</td>
<td>.12**</td>
<td>.04</td>
<td>.11**</td>
<td>.07</td>
<td>.00</td>
<td>.19*</td>
<td>.13*</td>
<td>.41**</td>
<td>(.69)</td>
<td></td>
</tr>
<tr>
<td>12. Task performance</td>
<td>25.28</td>
<td>.10</td>
<td>.16**</td>
<td>.18**</td>
<td>.05</td>
<td>.04</td>
<td>-.01</td>
<td>-.01</td>
<td>-.07</td>
<td>.99*</td>
<td>.03</td>
<td>.36**</td>
<td>.54**</td>
<td>(.91)</td>
</tr>
</tbody>
</table>

*Note.* ** p = 0.01, * p = 0.05. Reliabilities are on the diagonal.
Among the JSM variables, all the work-based variables were correlated with each other at a moderate level, while non-work social support was weakly associated with work support, but not with other JSM variables. The strongest relationship in this latter variable group was between job control and work-based support, followed by workload and job control, and workload and work-based support, respectively. The only negative relationship in this group was found between workload and support from work.

All justice variables were related to each other in a positive direction. The strength of most of these relationships was medium, except for relationships involving procedural-core, interpersonal and informational justice measures, which were stronger. The strongest relationship in the group of justice variables was between interpersonal and informational justice, and the weakest relationship was between interpersonal justice and distributive justice.

A large number of relationships between the JSM variables and justice variables could be observed. All of the JSM variables were related to justice measures, except for workload and procedural-voice, workload and interpersonal justice, and job control and distributive justice. The strongest relationships between these two groups of variables existed when work-based social support was involved, although the strength of these relationships was moderate at best. Workload was the only variable that had negative relationships with justice measures, and the strongest negative relationship was between workload and distributive justice.

All three measures of performance were moderately related in the positive direction. The weakest association was between task performance behaviour and
OCB-I. Unexpectedly, OCB-O had a stronger link with task performance than with OCB-I.

The final set of correlation results showed associations between predictors (i.e., the JSM and justice variables) and outcomes (i.e., performance variables), and a number of notable relationships could be observed. An important feature was the large number of significant correlations involving work-based JSM variables (i.e., excluding non-work support) when compared to those involving the justice items. Out of the nine correlations involving demands, control and work-based support, eight were significant in the positive direction. The strength of these correlations was weak to moderate. The only non-significant association from the nine correlations was between work support and task performance. In comparison, only four of the 15 correlations involving the justice variables were significant. These significant correlations were between interpersonal justice and OCB-O, interpersonal justice and task performance, informational justice and task performance, and procedural-core justice and OCB-O. These correlations were generally weak in strength. The two justice measures that did not relate to any outcomes were procedural-voice and distributive justice.

Another noteworthy trend evident in the correlation matrix was the direction of the relationships between job demands and the three measures of performance. Increased workload demands were associated with higher levels of in-role and extra-role performance, not decreased performance as is often the case in job stress research involving job demands (Gilboa et al., 2008). The direction of the job demands-performance relationship, and the extent to which the JSM and justice
variables accounted for explained variations in employee performance, were subsequently examined more closely using multiple regression analyses.

### 3.2.2 Hierarchical regressions and responses to Hypotheses 1 to 6.

Hierarchical multiple regression was undertaken to further explore the complex relationships evident in the correlation analyses. Multiple regression is appropriate for this purpose, as the technique allows interrelationships among a relatively large number of variables to be explored simultaneously (Tabachnick & Fidell, 2007).

Table 3.4 shows the results of the multiple regression analyses involving the cross-sectional data. The overall model for task performance, after the effects of targeted demographic variables were removed, was significant ($R^2 = 0.079$, $F(27, 613) = 2.471, p < 0.001$). The model as a whole, after accounting for controlled variables, was also significant for the outcome measures of OCB-I ($R^2 = 0.133$, $F(27, 613) = 3.485, p < 0.001$) and OCB-O ($R^2 = 0.161$, $F(27, 613) = 5.224, p < 0.001$). That is, the model as a whole, after accounting for controlled variables, could explain 16.1 per cent of the variance in OCB-O, 13.3 per cent for OCB-I and 7.9 per cent for task performance. These results showed that the JSM and justice measures could account for significant levels of explained variance in the performance measures over and above the targeted demographic variables. Accordingly, Hypothesis 1a, which predicted the association between the JSM variables and performance measures after key demographics were accounted for, was supported. Conversely, the percentage of variance explained by the justice models was small. That is, 1.6 per cent from the overall 16.1 per cent for OCB-O, 2.2 per cent from the overall 13.3 per cent for OCB-I, and 1.4 per cent out of 7.9 per cent for in-role
performance behaviours. However, these results were significant, so Hypothesis 1b, which posited the effects of the justice variables over and above the JSM variables, could be supported.

Several significant relationships were found in the hierarchical regressions, supporting a number of the remaining hypotheses. The proportion of explained variance attributed to the JSM additive model was significant for both the in-role and extra-role performance measures, supporting Hypothesis 2a. There were also strong associations between workload demands and the three performance measures. Although consistent with the bivariate correlations (see Table 3.3), these were inverse relationships (i.e., increased workload was associated with higher task performance and OCB). The beta values attributed to the relationships between workload demands and OCB measures were larger than that between workload demands and task performance. Given that results support the differential effects of workload, but not the direction, Hypothesis 2b, which stipulated a negative direct linear effect of workload on performance measures, was only partly supported.
### Table 3.4

Hierarchical Regressions of Cross-Sectional Data ($n = 640$).

<table>
<thead>
<tr>
<th>Step</th>
<th>Task performance</th>
<th>OCB-$I^\dagger$</th>
<th>OCB-$O^\dagger$</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>$B$</td>
<td>$\beta$</td>
<td>$R^2$</td>
</tr>
<tr>
<td>1</td>
<td>Age</td>
<td>.088</td>
<td>.031</td>
</tr>
<tr>
<td></td>
<td>Gender</td>
<td>.039</td>
<td>.006</td>
</tr>
<tr>
<td></td>
<td>Employment Length</td>
<td>.279</td>
<td>.082</td>
</tr>
<tr>
<td>2</td>
<td>WL</td>
<td>.036</td>
<td>.114**</td>
</tr>
<tr>
<td></td>
<td>JC$^\dagger$</td>
<td>.060</td>
<td>.135**</td>
</tr>
<tr>
<td></td>
<td>WS</td>
<td>.001</td>
<td>.004</td>
</tr>
<tr>
<td></td>
<td>NWS</td>
<td>.013</td>
<td>.053</td>
</tr>
<tr>
<td>3</td>
<td>WL$^2$</td>
<td>.000</td>
<td>.019</td>
</tr>
<tr>
<td></td>
<td>JC$^2$</td>
<td>.003</td>
<td>.074</td>
</tr>
<tr>
<td></td>
<td>WS$^2$</td>
<td>.001</td>
<td>.031</td>
</tr>
<tr>
<td></td>
<td>NWS$^2$</td>
<td>-.001</td>
<td>-.035</td>
</tr>
<tr>
<td>4</td>
<td>WL x JC</td>
<td>.001</td>
<td>.016</td>
</tr>
<tr>
<td></td>
<td>WL x WS</td>
<td>.000</td>
<td>.012</td>
</tr>
<tr>
<td></td>
<td>WL x NWS</td>
<td>-.002</td>
<td>-.074</td>
</tr>
<tr>
<td></td>
<td>JC x WS</td>
<td>.001</td>
<td>.017</td>
</tr>
<tr>
<td></td>
<td>JC x NWS</td>
<td>.002</td>
<td>.043</td>
</tr>
<tr>
<td>5</td>
<td>WL x JC x WS</td>
<td>.000</td>
<td>.020</td>
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<tr>
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<td>WL x JC x NWS</td>
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<td>-.008</td>
</tr>
<tr>
<td>6</td>
<td>PCJ</td>
<td>-.023</td>
<td>-.036</td>
</tr>
<tr>
<td></td>
<td>PVJ</td>
<td>-.034</td>
<td>-.036</td>
</tr>
<tr>
<td></td>
<td>DTJ</td>
<td>-.032</td>
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</tr>
<tr>
<td></td>
<td>IPJ</td>
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<td>IFJ</td>
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<td>-.044</td>
</tr>
<tr>
<td>7</td>
<td>PCJ$^2$</td>
<td>.003</td>
<td>.023</td>
</tr>
<tr>
<td></td>
<td>PVJ$^2$</td>
<td>-.017</td>
<td>-.061</td>
</tr>
<tr>
<td>Step</td>
<td><strong>Task performance</strong></td>
<td></td>
<td></td>
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<tr>
<td>------</td>
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<td>---</td>
</tr>
<tr>
<td></td>
<td><strong>B</strong></td>
<td><strong>β</strong></td>
<td><strong>R^2</strong></td>
</tr>
<tr>
<td>DTJ^2</td>
<td>.009</td>
<td>.070</td>
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</tr>
<tr>
<td>ITJ^2</td>
<td>.005</td>
<td>.038</td>
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<td>.003</td>
<td>.031</td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>PCJ x DTJ</td>
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<td>-.084</td>
</tr>
<tr>
<td></td>
<td>PVJ x DTJ</td>
<td>.007</td>
<td>.049</td>
</tr>
</tbody>
</table>


†OCB-I, OCB-O and Job control regressed onto OCB-O were transformed using a reflect and square root transformation.

**p = 0.01, * p = 0.05.
Job control and, to a lesser extent, social support, were closely associated with the target variables, and these relationships were in the direction predicted in Hypothesis 2c (positive job control-performance relationship) and Hypothesis 2d (positive social support-performance relationship). Increased control was associated with increased task performance and OCB-O, and social support at work was associated with OCB-I and OCB-O. However, the effect size associated with the relationship involving job control and OCB-O was slightly larger than that involving task performance. As a result, Hypothesis 2c was only partly supported. Hypothesis 2d received relatively stronger support, given that the results revealed a positive direct relationship between social support and the OCB measures. Overall, hierarchical results involving the main effects of job control and social support on performance measures were consistent with the bivariate correlations (see Table 3.3).

With respect to the JSM curvilinear and interaction results, two trends could be observed. First, none of the JSM variables were curvilinearly related to the performance measures. Hence, Hypothesis 6a was not supported. Second, the proportion of variance accounted for by the two and three-way interaction terms was significant for the two-way interaction between workload and job control when regressed against OCB-I, the two-way interaction between workload and non-work support when regressed onto OCB-O, and the three-way interactions (workload x control x work support and workload x control x non-work support) when regressed against OCB-O. However, the significant two-way interactions must be interpreted with caution, given that the overall model for these interactions was not significant. Care should also be taken when interpreting the three-way interaction involving non-work support, given the non-significant main effects of this variable in the additive
JSN model. Accordingly, only Hypothesis 4c, which predicted three-way interactions among the JSN variables, can be supported. Unlike the OCB measures, the results involving the JSN interaction terms when regressed against task performance were not significant. Consequently, Hypothesis 4d, which predicted that the effect of the JSN interactions would be stronger on OCB than on task performance, was supported.

Finally, regressions involving the direct linear effects of justice dimensions identified some significant, although small, coefficients (Hypotheses 3a–3e). In general, the resource-laden dimensions of the organisational justice model were more strongly represented in the regression results involving interpersonal and procedural justice types. Specifically, interpersonal justice was the only justice measure to show linear relationships with the outcome variables, which were task performance and OCB-O. The amount of variance in OCB-O attributed to interpersonal justice was a little greater than the amount captured by this form of justice when regressed against task performance. However, the overall model for justice main effects when regressed against OCB-O was shown to have a much larger $R^2$. This result provides some support for Hypothesis 3a and full support for Hypothesis 3d. Hypotheses 3b, 3c and 3e were rejected.

Effects of the justice models other than the direct linear models (Hypotheses 5a, 5b and 6b) were found only when the squared procedural justice items were regressed against OCB-I. Therefore, there was some limited support for the hypothesis in relation to the curvilinear relationships between justice measures and performance outcomes (Hypothesis 6b). More specifically, squared procedural-core justice was related positively with OCB-I, whereas squared procedural-voice justice
was associated negatively with this performance measure. The beta value associated with these relationships and the corresponding $R^2$ were moderate. However, these results were significant, and further discussion is warranted. The interaction hypotheses involving justice variables (Hypotheses 5a and 5b) did not receive support.

3.3 Discussion of Results from Study 1 (Cross-Sectional Study)

In the cross-sectional study, a model incorporating the JSM and dimensions of organisational justice was used to examine the relationships between potentially stressful working conditions and multiple measures of worker performance. Much of the job stress literature focuses on the health and attitudinal outcomes associated with adverse working environments, and comparatively little is known about the strength and nature of the stressor-performance relationship (Jex, 1998; Jex et al., 2006; Schreurs et al., 2012). To investigate this relationship, this study used a comprehensive series of analyses to test for linear, nonlinear and interactive effects, to determine whether these conditions are associated with employee performance in the direction stated in Hypotheses 1 to 6.

A number of important findings were identified in the cross-sectional results. Overall, the regression analyses (see Table 3.4) undertaken in Study 1 suggest that stressful working conditions may not only affect employee wellbeing, but they may also influence employees’ ability to perform important work roles. A significant proportion of the explained variance in all three outcome measures was attributed to the additive JSM. The level of variance associated with the organisational justice dimensions was relatively small. However, there were signs that individual justice variables, particularly in relation to the interpersonal and procedural-based justice,
may provide unique insights into the stressor-performance relationship. This information can potentially extend current stress-justice research, which has been dominated by studies that focus on health and attitudinal outcomes (e.g., Kivimaki et al., 2003; Kouvonen et al., 2008; Lindfors et al., 2009). Finally, findings from the multiple regressions generally support distinguishing between job performance types, thereby contributing to the knowledge about how stress-related working conditions may differentially influence performance measures (Cropanzano et al., 2001b; Organ, 1988).

The following section provides a detailed discussion of the cross-sectional findings from Study 1. However, it should be noted that one of the main aims of undertaking Study 1 was to provide baseline data for determining the stability of the stressor-performance relationships over time in the subsequent longitudinal study (Study 2). Therefore, results from Study 2 need to be taken into consideration before developing firm conclusions regarding the results of Study 1. The discussion of the longitudinal findings can be found in Chapter 4, while a discussion of the overall findings, implications and conclusions will follow in the final chapter, Chapter 5.

3.3.1 The influence of stress-related working conditions on job performance.

The results from the cross-sectional analysis generally reinforce two proposals from previous research regarding the impact of stress-related working conditions. First, the current findings highlight the potential impact of working conditions found in the day-to-day work environment. That is, stress-related working conditions may have an effect on performance as well as on health (Jex, 1998; Jex et al., 2006). The possibility that job stress may impede or undermine employee performance is an
under-researched area within the job stress literature. As such, there has been doubt whether this relationship exists and, if so, what the relationship looks like (Jex, 1998; Sullivan & Bhagat, 1992). The results of the current study suggest that there is a relationship between chronic stressors and job performance, and that there are firm grounds for examining these relationships in a longitudinal investigation.

The other important finding in regard to the influence of stress-related working conditions is that the impact of these conditions was over and above the influence of demographic variables, including gender, age and length of employment. The possible confounding effects of these personal characteristics have been frequently investigated in police stress research (Chen, 2009; He, Zhao, & Ren, 2005; Martinussen et al., 2007). However, results are often mixed and very few studies have investigated the link with performance measures. In this cross-sectional study, gender and age were shown to have significant beta values when regressed against OCB-I and OCB-O, respectively. The results not only reinforce the effects of these personal characteristics on OCB measures as previous studies have suggested (Allen, 2006; Coyle-Shapiro, 2002; Davila, Finkelstein, & Castien, 2011; Morrison, 1994), but they also indicate that the impact of personal traits may be surpassed by the influence of key stress-related working conditions. To be more certain, the current investigation will further examine the relationship between stress-related working conditions and performance while controlling for these demographics in the longitudinal phase of the study (see Chapter 4).

3.3.2 The predictive capacity of the JSM-justice framework.

An important aim of the cross-sectional study was to examine the capacity of the combined JSM-justice framework to account for variance in job performance.
The value of this framework has so far been reported mainly in studies examining health outcomes (e.g., Inoue et al., 2010; Kivimaki et al., 2006; Lindfors et al., 2009). The current findings are therefore among the first to suggest that the combined stress-justice model may be an appropriate theoretical framework for investigating employee performance. However, it is important to note that the total variance in performance explained by the JSM-justice model was moderate at best, although the weaker $R^2$ values were expected. The strength of the relationship between job stressors and performance has often been found to be modest due to performance being a distal variable in relation to proximal variables such as attitudes (Kanfer, 1992), and to the likelihood that performance fluctuates in relation to many factors (Cooper et al., 2000; Leventhal & Tomarken, 1987; Zapf et al., 1996). The relatively low $R^2$ values reported in this study are comparable to those from the majority of cross-sectional and meta-analytic studies involving the stressor-performance relationship, regardless of the sample (Jackson & Schuler, 1985; Tubre & Collins, 2000).

The components of the JSM-justice framework that were found to have predictive value overall were the additive JSM, the three-way interactive JSM and the additive and curvilinear justice models (especially those involving interpersonal and procedural-based justice variables). The components of the JSM-justice framework and the associated results will be discussed in more detail in the following sections.

3.3.2.1 The value of the additive JSM.

The results from the cross-sectional study revealed that the additive JSM accounted for explained variance in both task performance and OCB measures. The
significant relationship involving OCB measures is particularly noteworthy, considering that extra-role performance has rarely been examined in stress studies (Bakker et al., 2004; Jex et al., 2006)(Sliter et al., 2012). Further, the current results showed that the additive JSM accounted for substantially larger proportions of variation in citizenship behaviour when compared to task performance behaviour.

The effect sizes attributed to workload demands were particularly strong in relation to OCB-O, although the absolute beta value for OCB-I was still noticeably greater than that for task performance behaviour. These findings may be somewhat unique to the policing context, in which, as a result of sophisticated criminal activity coupled with the modern community-oriented approach to law enforcement, the demands faced by police officers often involve high levels of complexity and interdependence (Srivastava & Krishna, 1991; Vickers & Kouzmin, 2001). Such demands not only require persistent effort from operational members, but also the demonstration of considerable initiative and proactive collaboration (Violanti & Aron, 1995). A high level of teamwork, within and between operational units, is therefore critical to crime reduction efforts, and the close links between demands and citizenship behaviours may be a reflection of this environment.

A closer examination of the additive model of the JSM revealed several other important trends. An unexpected result, when compared to the previous research involving the JSM, was the direction of the relationship between workload demands and the three measures of performance. Hypothesis 2b stated that when confronted with heightened job demands (Karasek, 1979) employees would reduce their non-task performance rather than their task performance to avoid serious repercussions associated with the latter (Organ, 1997; Bergeron, 2007). However, the present cross-sectional findings revealed that higher levels of workload were associated with
higher levels of performance measures, suggesting that workload may have enhanced, rather than undermined, extra-role performance. The results involving workload demands and discretionary measures of performance are contrary to most previous studies, which have generally found deleterious effects of workload on employee performance (e.g., Hurrell & Colligan, 1987; Jex et al., 1991; Laaksonen, Rahkonen, Martikainen, & Lahelma, 2006). Moreover, this finding runs counter to a prediction of the JSM itself, that the two variables are negatively associated (Karasek, 1979).

There are a number of reasons that could explain the positive relationship involving workload demands. The first explanation is that employees in the current study may regard workload as a challenge rather than a hindrance, and the perceived challenge results in higher performance. According to the recent challenge-hindrance hypothesis (see Section 2.4.2.4), stressors have both functional (challenge) and dysfunctional (hindrance) aspects (Boswell et al., 2004; Cavanaugh et al., 2000; Gilboa et al., 2008; LePine et al., 2005). A number of previous studies that tested the challenge-hindrance hypothesis have supported this positive relationship (LePine et al., 2005; Podsakoff et al., 2007; Wallace et al., 2009). Another explanation for the unexpected result involving the main effects of workload demands is that the participants who reported higher levels of performance were the same people who had higher job demands and achieved more at work (Beehr et al., 2000). That is, the performance scores reflected the job demand scores. The third explanation is more complex and is based largely on the COR literature and the context in which the current investigation was undertaken. According to the COR theory, people seek to protect resources they value, including personal attributes such as energy and enthusiasm, and they must bring in resources to
conserve (or regain) resources (Hobfoll, 2001). Heightened job demands represent a threat to energy resources and, consistent with Hobfoll and Shirom (2000), participants may have responded by using citizenship behaviours and in-role performance as a means of building social capital and/or organisational capacity, thereby preventing or reducing energy depletion. The need to invest in pro-social behaviour as a way of conserving personal resources may therefore explain why the JSM accounted for substantially larger proportions of variation in citizenship behaviour when compared to task performance behaviour as well. The longitudinal study of the present investigation will continue to explore the workload-performance relationship to be more certain whether the current cross-sectional result was an anomaly or a stable trend.

Another trend that emerged from examining the JSM additive model was the close links between the external work-based resources—job control and social support—and the performance measures. More specifically, findings revealed that higher levels of these work-based resources were associated with higher performance. These results may be a reflection of both the instrumental role job control and social support play in fostering team behaviours, and their stress reduction capabilities (Burke & Richardsen, 1993). Complex and unpredictable job demands are still likely to affect employees, even if they do prompt resource-conservation efforts. Moreover, consistent with the stress appraisal process, decision-making control and social support are likely to offer valuable mechanisms for alleviating the pressure and anxiety that comes from these complex demands (Lazarus & Folkman, 1984). Results regarding the close association between key work-based resources (job control and social support) and both in-role and extra-role performance parallel previous job stress research (Beehr et al., 2000; Organ & Ryan,
These results also suggest that job control and social support may be particularly useful avenues for preventing or reducing stress-impaired performance.

In relation to the differential effects of work-based resources on worker performance, it was hypothesised that the positive main effect of job control would be stronger on task performance than on OCB (Hypothesis 2c), and that the positive main effect of social support would be stronger on OCB than on task performance (Hypothesis 2d). As hypothesised, work-based support had stronger associations with OCB measures ($\beta$ of OCB-I = .206, $\beta$ of OCB-O = .087), while the relationship between support and task performance was not statistically significant. More specifically, the finding that social support recorded a higher beta value with OCB-I than on OCB-O strengthens the notion that OCB-I is more likely a social resource. Therefore, OCB directed at the individual may operate largely within the social exchange framework, rather than through the economic exchange framework, as hypothesised. In regard to job control, cross-sectional analyses revealed that control was linked with task performance and OCB-O in the positive direction as expected. However, the beta value of the relationship between job control and OCB-O ($\beta = .150$) was slightly larger than that between job control and task performance ($\beta = .135$), resulting in partial support for Hypothesis 2c. The significance of OCB-O was not only revealed through the stronger association between job control and OCB-O, but also reflected by the strong $R^2$ value of the additive JSM model on this outcome ($R^2 = .151, p < 0.01$) compared to the $R^2$ value of the same model on OCB-I ($R^2 = .111, p <0.01$) and task performance ($R^2 = .052, p <0.01$). Further, OCB-O was the only performance measure significantly associated with the JSM interaction model.
At first glance, the result that job control was more closely associated with OCB-O than with task performance seems to contradict the rationale that resources provided by the organisation (i.e., job control) would link more closely with contract-based outcomes (i.e., task performance) due to the economic exchange relationship in which both variables operate. However, it may be that the study participants regarded OCB-O as an aspect of prescribed performance rather than discretionary performance. This tentative explanation is supported by the bivariate correlations that showed the relationship between task performance and OCB-O to be stronger than that between OCB-O and OCB-I (see Table 3.3). It is possible that OCB-O is not entirely altruistic and may be seen as an attempt by employees to improve others’ impressions of them in the workplace (Bolino, 1999; Rioux & Penner, 2001). After all, both OCB-O and task performance are productive behaviours that benefit the organisation more directly than OCB-I. While employees may want to ensure social support by investing more in social relationships through increasing OCB-I (Halbesleben & Bowler, 2007), contributing OCB-O may be seen as a means to maintain important contract-based resources such as job control more than anything else. In this way, OCB-O and task performance may be closer to each other than to OCB-I. In all, the findings involving close association between job control and OCB-O suggest that it is important to categorise employees’ reciprocation efforts by the source of benefits, and that different forms of efforts may have unique antecedents and/or consequences (Halbesleben & Bowler, 2007; Podsakoff et al., 2000; Settoon et al., 1996).

3.3.2.2 The value of organisational justice theory.

One of the unique contributions of the current investigation was the inclusion of organisational justice as a potential source of stress that may affect job
performance. Previous justice-stress research had generally found that justice dimensions were independent predictors of the target variables (e.g., Elovainio et al., 2002; Kivimaki et al., 2004; Laarksonen et al., 2006), hence it was hypothesised that the fairness variables would also account for significant proportions of variance in employee performance above and beyond the JSM (Hypothesis 1b). Results from the cross-sectional analysis provided some support for the inclusion of the justice dimensions in the current investigation. However, the dimensions of justice only captured small proportions of explained variance in performance relative to the effects attributed to the JSM. That is, after entering the additive justice model for OCB-O and task performance, the total variance explained by the overall study model was increased 1.5 per cent, from 17.8 per cent to 19.3 per cent, and 2.7 per cent from 5.2 per cent to 7.9 per cent, respectively. Similarly, the addition of the curvilinear justice model increased the total explained variance in OCB-I by 2.2 per cent, bringing the total from 13.7 per cent to 15.9 per cent. The significant $\beta$ value for each of these relationships was also low ($\beta$ ranged from .109 to .145). The low $\beta$ values were also found in previous stress-justice research. For example, in Lindfors et al.’s 2009 study, after accounting for job control, the $\beta$ value for justice was recorded at .18, $p = .001$.

One explanation for the prominence of the JSM in the cross-sectional study when compared to the justice variables could relate to the nature of the variables involved and their relevance to everyday work tasks. Job demands, job control and social support are core characteristics of the job itself. These working conditions are instrumental to completing both in-role and extra-role tasks, and they would be expected to be more closely associated with job performance behaviours (Humphrey et al., 2007). In comparison, the justice dimensions are likely to be associated with
relatively discrete decisions involving the allocation of resources, such as promotions, bonuses, the outcomes of performance appraisals and new work roles (Colquitt, 2001). Although justice-related decisions are considered very important to the people involved, and may have a significant impact on individual wellbeing for some time, these decisions are generally made on a less frequent and more sporadic basis (i.e., at reward distribution times). This view of organisational justice suggests that the influence of justice variables will be less than the effects associated with the more chronic and ever-present job characteristics such as those described in the JSM.

Despite the comparatively small contribution of the justice variables to the $R^2$, the overall level of variance accounted for by organisational justice was still significant. This result is consistent with recent studies that adopted the stress-justice framework to examine health outcomes (e.g., Elovainio et al., 2001; Heponiemi et al., 2007; Winefield et al., 2010). The current results involving the organisational justice variables also reinforced the notion that individual justice variables, particularly interpersonal and procedural types, may be more influential in the stressor-performance relationship than other justice types (e.g., Elovainio et al., 2001; Inoue et al., 2010; Kop et al., 1999). In the case of interpersonal justice, this variable was associated with both task performance and OCB-O. This association indicates that being treated with respect and dignity during resource allocation decisions may have implications for the employee’s willingness and/or ability to fulfil work roles, irrespective of whether these roles are in-role-based or extra-role-based. The other justice terms that showed some value were related to procedural justice. The squared procedural-core term was associated with OCB-I, suggesting that the relationship between participants’ perception of the procedures used to make
resource allocation decisions and their citizenship behaviour toward their colleagues is not a linear one. Rather, the positive influence on OCB-I may be accelerated when perceptions of procedural justice reach moderate to high levels.

The results involving interpersonal and procedural-core justice are important in several ways. The findings support the broad manner in which resources are defined in the COR (Hobfoll, 1998) and JD-R theories (Demerouti et al., 2001), and suggest that studies guided by more prescriptive demand-resource-oriented models, such as the JSM, may overlook important opportunities for explaining performance-related outcomes if this broader definition is not applied. Evidence of the curvilinear relationship involving procedural-based justice measures is important in that it contributes to the very limited body of research on the nonlinear relationships associated with organisational justice (van Dierendonck et al., 1996; 2001). At a minimum, including curvilinear models remains necessary for providing methodological protection against possible spurious interaction effects. Therefore, it is recommended that future studies testing for interactions between independent variables also incorporate tests for nonlinear effects.

Another unique feature of the current investigation was the distinction made between the two forms of procedural justice (i.e., core and voice). The two dimensions had significant curvilinear effects on OCB-I, but in opposite directions. That is, higher procedural-core justice was associated with higher OCB-I, while higher procedural-voice justice was linked to lower OCB-I. These findings suggest that employees may have increased extra-role behaviours directed towards their colleagues when they felt the procedures used by authorities to make resource-allocation decisions were fair. Conversely, the curvilinear relationship between
procedural-voice justice and OCB-I indicates that there may also be diminishing returns associated with having too much input into resource-allocation processes. Although the disparity involving the two forms of procedural justice reinforces the need to examine their independent contributions, the main (i.e., linear) effects of both procedural fairness types were not significant, and hence further research is required to determine the value of extracting voice from conventional procedural justice. An assessment of the two procedural-based justice types will also be undertaken in the longitudinal phase of the current investigation (see Chapter 4).

3.3.2.3 Interactions between the JSM working conditions.

Although the majority of relationships found in Study 1 were direct linear as prior research had indicated (van der Doef & Maes, 1999), three interaction-based relationships were identified, and all resulted from the synergy between the JSM variables. However, results involving non-work support (i.e., two-way interaction between workload and non-work support, and three-way interaction between workload, job control and non-work support) must be considered with caution, given that non-work support did not reach significant $\beta$ value in the additive model. Further, the two-way interaction between workload demands and non-work support did not reach significant $R^2$ level for the particular model. Further evidence from the longitudinal study needs to be taken into account before the aforementioned interactions can be interpreted with more confidence.

Given the uncertainty regarding interactions involving non-work support, the only JSM interaction term worth discussing was the statistically significant three-way interaction between workload, job control and work-based support. This result (high workload x high job control x high work-based support associating with high
levels of OCB-O) suggests that employees whose job demands were offset by work-based resources in the form of job control and social support were more likely to perform higher levels of OCB-O. The result suggests that job demands do not necessarily lead to negative outcomes if employees have the resources to deal with those demands. The \( \beta \) value for this three-way interaction was weak (.099). Nevertheless, its presence was encouraging considering that few studies have tested the JSM interactive hypothesis, and even fewer have reported results supporting the three-way synergistic effects (van der Doef & Maes, 1999). In relation to work performance, the author of this thesis has been unable to identify any studies investigating the links between the JSM interaction terms and measures of in-role and extra-role performance types simultaneously. Further, few studies testing for the interaction effects controlled for the curvilinear effects (Karanika-Murray et al., 2009; Rydstedt et al., 2006), or centred the predictor variables to help reduce multicollinearity in creating curvilinear and interaction terms (Aiken & West, 1991; Cohen et al., 2003). The current study tested for nonlinearity and followed procedures for minimising multicollinearity as recommended by Aiken and West, and Cohen and colleagues for testing for interaction features. Even after these procedures were applied, interactions were still identified. The stricter process for testing for interactions provided more confidence in concluding that the three-way interaction found was not a statistical artefact.

3.3.3 The significance of differentiating between job performance measures.

The cross-sectional results indicate that performance measures had unique relationships with each working condition, and these results support the proposal that stress research would benefit from distinguishing between employee
performance types (Bakker et al., 2004; Jex et al., 2006; Motowidlo & Scotter, 1994)(Sliter et al., 2012). In general, stress-related working conditions were found to associate more with fluctuations in the OCB measures, considering that amount of variance explained by these working conditions was highest for OCB-O, followed by OCB-I and task performance, respectively. Further, several of the models tested in this study including the JSM additive model, the three-way JSM interaction model and a justice curvilinear model could explain variance in OCB measures, while the only models that accounted for variance in task performance were the JSM and justice additive models.

Although few studies have investigated the relationships between job environment features and multiple performance types (Bakker et al., 2004; Jex et al., 2006)(Sliter et al., 2012), some support can be found for the differential effects identified in the cross-sectional study. For example, Piercy and colleagues (2006) investigated the relationships between job control and perceived organisational support and several performance measures including task performance and OCB. Overall, both control and support were found to relate more strongly with OCB and its measures including civic virtue than with in-role performance. The current results are also in line with the notion that extra-role behaviour can be more easily adjusted due to the personal control that employees have on this type of performance relative to task performance (Organ, 1997).

3.3.4 Summary of Study 1.

This chapter has presented the method, results and a discussion of results from Study 1. In this study, a cross-sectional research design was employed to examine the synchronous relationships between key psychosocial working conditions and
employee performance behaviours. The findings from the study are generally consistent with the proposition that stress-related working conditions are associated with performance fluctuations. The JSM-justice framework was also found to be valuable in identifying working conditions that were closely associated with employee performance. Overall, both the JSM and justice models were linked deferentially, albeit moderately, to in-role and extra-role performance types. The JSM variables collectively accounted for relatively large portions of variance in both in-role and extra-role performance. The results suggest that the JSM conditions may offer valuable opportunities for capturing stress-induced performance fluctuations. However, the positive association between workload demands and all three performance measures did not reflect the majority of demands-performance research, although this association was not unexpected from the viewpoint of the challenge-hindrance hypothesis and a conservation of resources perspective.

The regression results provided considerably less support for the dimensions of organisational justice, yet there were some signs that certain resource-oriented fairness variables (i.e., procedural and interpersonal justice) may be influential in the stressor-performance relationship. Moreover, future research examining the relationship between stressful working conditions and employee performance could benefit from adopting a broad definition of resources that take into account the manner in which justice-related decisions are made.

The relationships identified in Study 1 followed a number of pathways (i.e., direct linear, curvilinear and interaction-based), although the dominant models were the direct linear relationships. By themselves, the overall findings evident in this study reinforce the merits of focusing on chronic stress-related working conditions
and using the JSM-justice framework to examine the associations between working conditions and performance-related outcomes. The current findings also indicate the value of differentiating between performance types and testing above and beyond direct linear relationships.

Despite the merits of Study 1, a major limitation of this study is that the findings were obtained at only one point in time. Consequently, the stability of findings over time cannot be established, and longitudinal research is required to examine the strength and nature of the aforementioned relationships more completely. The following chapter, Chapter 4, presents the method, results and discussion of Study 2. This study is longitudinally-designed with a 17-month time lag. The aim of this longitudinal study is to investigate the longer-term effects associated with the same key working conditions explored in the cross-sectional study. To do so, work environment characteristics at the first time point (Time 1) will be assessed for their relationships with job performance at the second time point (Time 2).
Chapter Four: The Longitudinal Study (Study 2)

This chapter presents the method, results and discussion of the longitudinal component of the current investigation (Study 2). The results and discussion are based on analyses of Time 1 predictors regressed against Time 2 outcomes while accounting for Time 1 outcomes and Time 2 control variables. The aims of investigating the longitudinal relationships between these variables were to examine their lagged associations, and to compare the current findings with the cross-sectional analyses from Study 1 (see Chapter 3). In particular, this longitudinal study was undertaken to test Hypotheses 7 to 11, which address the lagged effects of stressors when regressed against employee performance.

Similar to the previous chapter, this chapter was divided into three sections. The first section focuses on the method used to collect data, while the second presents the results of the correlation and hierarchical regression analyses of longitudinal data. The third and final section consists of a discussion of the longitudinal results.

4.1 Method

The following section describes the method for undertaking Study 2. The section outlines details of the longitudinal research design including data collection procedures, participants and measures used.
4.1.1 The study design.

Data for the longitudinal study were drawn from the same research project undertaken in conjunction with Victoria Police described in Study 1 (see Section 3.1.1). Seventeen months after the gathering of the Time 1 data, another self-report questionnaire accompanied by a letter providing informed consent was sent to each officer from within the participating region. Participants were asked the same questions as those at Time 1 and the procedures for protecting participant confidentiality and minimizing any discomfort felt by respondents, were again followed. Responses from Time 2 were matched with those from Time 1 based on the employee number respondents volunteered in both surveys.

In relation to the choice of the time lag, this longitudinal study drew on data collected at two time points, 17 months apart, to test the stability of relationships between working conditions and performance over a longer time period. The first wave of data collection was labelled Time 1 (T1), and the second wave Time 2 (T2). Longitudinal designs are preferred because they offer better opportunities for making causal inferences about the relationships under investigation (Zapf et al., 1996). However, there are no clear guidelines for undertaking longitudinal investigations. In particular, there has been very little discussion about the appropriate time intervals between measures (Zapf et al., 1996). The time lags of previous longitudinal studies focusing on job stress vary considerably, and can be as short as a few months with two-wave data collection (Edwards et al., 2007; Sargent & Terry, 2000) or as long as three years or more with a series of measurement points (e.g., Romelsjo et al., 1992; Smulders & Nijhuis, 1999; Wright, Bonett, & Sweeney, 1993).
Overall, two important trends in regard to the time lag can be observed from studies investigating longitudinal connections between job stressors and employee outcomes. First, studies undertaken over one to three years consistently reported the lagged effects of job stressors on employee behaviour (e.g., Smulders & Nijhuis, 1999; Takeushi, Wang, & Marinova, 2005; Wright & Bonett, 1997; Wright et al., 1993). Second, job-design stressors were shown to have a long-term but inconsistent impact on employee outcomes. For example, in a three-wave, three-year study (Carayon et al., 1995), workload and job control were found to relate significantly to employee strain after one year, while the effects of social support remained active for two years. None of the job condition variables were significant after the three-years. De Lange and colleagues (2004) also found the strongest effects of working conditions on the development of strain after one year. These findings are in line with prior suggestions that a longer time lag is preferred to a shorter one, particularly if enduring effects are expected (Dwyer, 1983; Zapf et al., 1996). In view of past evidence, the present study employed a longitudinal design with a longer time lag of 17 months.

4.1.2 Participants.

The number of matched and valid responses at Time 2 was 149. In response to this small final sample, the current investigation undertook a power analysis using the G*Power 3 program (Faul, Erdfelder, Lang, & Buchner, 2007). A t-test for linear multiple regression was chosen, and a power of .997 was obtained ($t(120) = 1.98, p < 0.05$ (two-tailed)). The result suggested sufficient statistical power for detecting the hypothesised relationships, given that the obtained power was higher than the desired level of .80. That is, there was more than an 80 per cent probability of detecting a significant result (Tabachnick & Fidell, 2007).
The 149 matched and valid responses at Time 2 represent 23 per cent of the valid responses at Time 1 \((n = 640)\). The modest retention rate is consistent with past organisation-based studies that employed a similar research design and a time lag of at least one year. For example, Tepper (2001) collected 3,355 valid responses involving justice and health from a large public organisation at Time 1, and retained matched responses of 399 at Time 2 (12 per cent of Time 1 responses) after one year. Hall and colleagues (2010) sent out 3,250 questionnaires to an Australian-based police agency, and were able to collect 22 per cent of usable responses at the first time point and 16 per cent at the second time point. In a three-year study of the relationship between organisational justice and the reactions of employees from a large public university, Tekleab and colleagues (2005) were able to collect 200 matched and valid responses at Time 2, representing 30 per cent of the Time 1 usable responses of 651. The decrease in the number of matched participants due to employee turnover, particularly when the time lag is longer, may partly explain the discrepancy between Time 1 and Time 2 valid responses (Teakleab et al., 2005). The method of matching Time 2 with Time 1 respondents by employee numbers (which were volunteered by employees) may also have contributed to the low number of responses at Time 2.

To assess the integrity of the number of matched responses, which decreased from 640 at Time 1 to 149 at Time 2, Missing Value Analysis (MVA) (SPSS Inc., 2008) was applied. T-tests were used for variables with at least 5 per cent of data missing, to determine if ‘missingness’ is related to other variables. Little’s MCAR test was also performed to decide whether the data were missing at random (Tabachnick & Fidell, 2007). MVA results revealed that a t-test was needed for support at work at both data points, but there was no systematic relationship between
missing data involving social support or any of the other variables. Little’s MCAR test returned a statistically non-significant result ($\chi^2 = 336.11, df = 309, p = .14$), indicating that the missing information was completely random.

In light of the attrition rate between Time 1 and Time 2, the potential for respondent biases was assessed using a series of chi-square goodness-of-fit tests on the gender, age and rank of participants. The results indicated that there was no significant difference in the proportion of these demographic variables between the longitudinal sample and the cross-sectional sample [$\chi^2$ for gender (1, $n = 149$) = .00, $p < .99$; $\chi^2$ for age (3, $n = 149$) = 4.8, $p < .187$; $\chi^2$ for rank (6, $n = 149$) = 2, $p < .921$]. Comparatively, the characteristics of the remaining sample at Time 2 were similar to those of the Time 1 sample. Further, they were similar to the characteristics found in previous samples from policing studies in Australia and the Australian State of Victoria (Davey et al., 2000; Hall et al., 2010), and in public record of Victoria Police demographic data (Victoria Police, 2011). A large majority of respondents were male (81 per cent), aged between 30 and 49 years old (74 per cent), working full-time (93 per cent) at the middle-rank level (84 per cent Constable/Sergeant), and having been with the organisation for 10 years or longer (84 per cent).

4.1.3 Measures.

The measures used in this study were the same as those from the cross-sectional study (see Section 3.1.4). Time 1 independent variables were job demands, job control, social support and multidimensional organisational justice, and the outcome variables were in-role performance, OCB-I and OCB-O. The control variables were Time 2 age, gender, length of employment and Time 1 outcomes.
4.1.4 Statistical analyses.

Similar to Time 1, data screening and assumption testing for multiple regressions were undertaken prior to running the analyses. Time 2 task performance, Time 2 OCB-I and Time 1 workload, when regressed onto Time 2 OCB-O, were transformed using the reflect and square root transformation. The evaluation of requirements for normality, linearity and homoscedasticity of the data and variables indicated that these assumptions were met after the transformations (Tabachnick & Fidell, 2007).

Hierarchical multiple regression analyses were used to assess the main, curvilinear and interaction effects associated with the predictor variables as they were in Study 1 (see Chapter 3). Procedures recommended by Cohen and colleagues (2003) were followed to test for curvilinear and interaction effects. These procedures include centering predictor variables to reduce multicollinearity, squaring the centred terms to test for curvilinearity, and multiplying the centred predictors to create interaction terms.

When undertaking the regression analyses, the order in which the study variables were entered into the regression was as follows. Time 2 demographics and Time 1 outcomes were entered in the first two steps and acted as controls for their effects. These were followed by steps involving Time 1 independent variables, starting with the JSM variables based on the additive model (demand, job control, social support at work and non-work support). The squared terms and two-way and three-way interaction terms of the JSM variables were entered in the next three steps. Organisational justice models were entered in the last three steps, starting with the additive model of the four justice dimensions, their squared terms and the two-
way interaction terms (distributive x procedural), respectively. This specific hierarchical multiple regression structure followed a two-wave longitudinal panel design appropriate for identifying the lagged effects between Time 1 predictors and Time 2 outcomes (Zapf et al., 1996). Another benefit of this longitudinal design is that accounting for Time 1 outcomes helps exclude occasion factors and background variables as a source of spurious dependency between Time 1 predictors and Time 2 outcomes (Zapf et al., 1996).

4.2 Results

The results of the longitudinal study are presented in the following sections. These results were derived from correlation and regression analyses using SPSS 17.0 (SPSS Inc., 2008).

4.2.1 Descriptive statistics, correlations and reliability coefficients.

Descriptive statistics, correlations and reliability coefficients of the variables in the study are shown in Table 4.1. All of the scales had acceptable reliability coefficients, with the Cronbach alpha coefficients ranging from .70 to .94.
Table 4.1

Descriptive statistics, correlations and reliability coefficients of predictor and outcome variables in longitudinal analyses \((n^{T2} = 149)\).

|                                | Mean  | SD  | 1    | 2    | 3    | 4    | 5    | 6    | 7    | 8    | 9    | 10   | 11   | 12   | 13   | 14   | 15   |
|--------------------------------|-------|-----|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| 1. T1 Job control              | 32.80 | .46 | (.83) |      |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| 2. T1 Workload                | 40.69 | .69 | .24** | (.94) |      |      |      |      |      |      |      |      |      |      |      |      |      |      |
| 3. T1 Work support            | 41.81 | .89 | .40** | -.19* | (.89) |      |      |      |      |      |      |      |      |      |      |      |      |      |
| 4. T1 Non-work support        | 48.96 | .78 | -.02 | -.04 | .15  | (.86) |      |      |      |      |      |      |      |      |      |      |      |      |
| 5. T1 Procedural-core justice | 9.65  | .31 | .14  | .09  | .35**| .03  | (.88) |      |      |      |      |      |      |      |      |      |      |      |
| 6. T1 Procedural-voice justice| 6.5   | .20 | .07  | -.22**| .27**| .02  | .50** | (.70) |      |      |      |      |      |      |      |      |      |      |
| 7. T1 Distributive justice    | 9.64  | .33 | -.02 | -.17* | .31**| .11  | .55** | .50** | (.87) |      |      |      |      |      |      |      |      |      |
| 8. T1 Interpersonal justice   | 13.66 | 2.88| .05  | -.14 | .37**| .04  | .52** | .44** | .45** | (.89) |      |      |      |      |      |      |      |      |
| 9. T1 Informational justice   | 14.30 | .38 | .06  | -.09 | .31**| .01  | .53** | .49** | .42** | .59** | (.89) |      |      |      |      |      |      |      |
| 10. T1 OCB-I                  | 39.44 | .45 | .17* | .17* | .20* | -.14 | -.03 | -.10 | -.13 | (.85) |      |      |      |      |      |      |      |      |      |
| 11. T1 OCB-O                  | 23.86 | .23 | .07  | .33** | -.08 | -.13 | .05  | .02  | .07  | .01  | .30** | (.68) |      |      |      |      |      |      |      |
| 12. T1 Task performance       | 25.44 | .19 | .09  | .21* | -.04 | -.05 | -.06 | -.13 | -.12 | -.13 | .39** | .52** | (.83) |      |      |      |      |      |      |
| 13. T2 OCB-I                  | 28.28 | .31 | .17* | .27** | .16  | .00  | .11  | -.06 | .02  | -.01 | .47** | .27** | .23** | (.77) |      |      |      |      |      |
| 14. T2 OCB-O                  | 23.57 | .24 | .15  | .31** | .04  | -.06 | .03  | .08  | -.06 | .09  | .06  | .21** | .50** | .30** | .42** | (.68) |      |      |      |
| 15. T2 Task performance       | 25.18 | .20 | .05  | -.03 | .07  | .02  | -.01 | .02  | -.04 | .03  | .00  | .04  | .31** | .38** | .11* | .46** | (.83) |      |      |

Note. ** = 0.01, * p = 0.05. Reliabilities are on the diagonal.
Several significant relationships were identified in Table 4.1. Similar to Study 1, the size of the correlations was small to moderate (Cohen, 1988). Given that none of the correlations exceeded a value of more than .70, multicollinearity was not expected to cause problems in the subsequent regression analyses (Tabachnick & Fidell, 2007).

While the strength and direction of the correlations found in Study 2 were comparable to those found in Study 1, there were far fewer correlations identified in Study 2. Out of the possible 27 correlations in the cross-sectional study, 12 were significant. In contrast, only three of the correlations between Time 1 predictors (JSM and justice variables) and Time 2 outcomes in the longitudinal study were significant. The three correlations involved job control, workload demands and OCB measures. Correlations involving workload were the strongest, although these were still only moderate.

Another important difference between the correlation results of this study and those from Study 1 was that only the work-based JSM variables (i.e., excluding non-work support) were correlated with outcome variables. None of the justice items showed significant correlations with performance. A further noteworthy trend evident in the correlation matrix was the direction of the relationships between workload demands and the three measures of performance. As was the case in Study 1, increased workloads were associated with higher levels of extra-role performance, not decreased performance, as is often the case in job stress research involving job demands (Gilboa et al., 2008). Interestingly, the strength of the workload demands-performance relationships was a little stronger in Study 2 than for the same relationships in Study 1. Generally, the size of correlations in longitudinal research
is smaller than for those found in cross-sectional research due to the time lag (Zapf et al., 1996). The direction of the workload demands-performance relationship, as well as the extent to which the JSM and justice variables accounted for explained variations in employee performance, were examined more closely using multiple regression analyses.

4.2.2 Hierarchical regressions and responses to Hypotheses 7 to 12.

Table 4.2 shows the regression analyses for the longitudinal study. The $R^2$ for the demographics step was not significant, thus it was not included in the overall equation. The overall equation for task performance after the effects of previous outcomes were accounted for was significant ($R^2 = .131, F(28, 120) = 1.872, p < 0.01$). The overall equation was also significant for the outcomes measures of OCB-I ($R^2 = .066, F(28, 120) = 2.590, p < 0.001$) and OCB-O ($R^2 = .114, F(28, 120) = 3.398, p < 0.001$). That is, the model as a whole, after removing effects of control variables, could explain 13.1 per cent of variance in task performance, 11.4 per cent for OCB-O and 6.6 per cent for OCB-I. Accordingly, Hypothesis 7a, which predicted the effects of Time 1 working conditions over and above Time 2 demographics and Time 1 outcomes was supported. The curvilinear justice model for task performance was the only justice model to reach significance, explaining 6.8 per cent of the overall 13.1 per cent of variance attributed to the predictor variables. None of the justice models was significant when regressed against the measures of OCB. Accordingly, Hypothesis 7b, which posited that Time 1 justice variables are associated with Time 2 performance measures after controlling for variance attributed to Time 1 JSM variables received only limited support.
In relation to the JSM variables, the proportion of explained variance attributed to the additive JSM model was only significant for extra-role performance measures, partially supporting Hypothesis 8a. When examining individual JSM items, evidence for main effects was shown strongly for workload demands, and the significant $R^2$ results were consistent with the results from the bivariate correlations (see Table 4.1). The proportion of explained variance attributed to the main effects of workload was significant for both extra-role performance measures. Further, similar to the results of the cross-sectional study, workload demands showed positive effects, not negative effects as hypothesised. These results provide partial support to Hypothesis 8b.

The other longitudinal hypotheses that received some support were the curvilinear hypotheses. Hypothesis 12a predicted curvilinear relationships involving the JSM variable, whereas Hypothesis 12b predicted curvilinear relationships concerning justice variables. The findings show that the JSM curvilinear model predicted OCB-O, while the justice curvilinear model predicted task performance. The specific JSM and justice variables that showed significant contribution to the overall curvilinear effects were work-based support, interpersonal justice and informational justice. The JSM curvilinear model and the justice curvilinear model could explain relatively large amount of variance ($R^2$ for the JSM curvilinear model = .402, $R^2$ for the justice model = .328).

The rest of the hypotheses (Hypotheses 8c, 8d, 9a–9e, 10a–10d, 11a–11b) were not supported in the regression results. Age was the only demographic variable that showed significant beta results (step 1). However, the $R^2$ value for the overall step was not significant, and the effect of age was regarded as inconsequential.
In summary, a small number of significant relationships were identified in Study 2. The JSM and justice models were shown to have some longitudinal associations with in-role and extra-role performance, and a close examination of individual components of these models showed two prominent patterns. There were strong associations between workload demands and the two OCB measures. Although consistent with the bivariate correlations (see Table 4.1), these were inverse relationships (i.e., increased workload demands were associated with higher OCB-O and OCB-I). This result replicates the result found in the cross-sectional study of the current investigation. A noteworthy trend that was not found in the cross-sectional study was that work-based support and agent-based justice types appeared to be closely associated with the target variables in the curvilinear direction. That is, increased support at work was associated with increased OCB-O, and interpersonal and informational justice measures were related to task performance, but only to a certain extent. These and other trends identified in the Study 2 results will be discussed in the following section.
Table 4.2  
Hierarchical Regressions of Longitudinal Data ($n^{T2}=149$).  

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<th>Step</th>
<th>$T2$ Task Performance†</th>
<th>$T2$ OCB-I†</th>
<th>$T2$ OCB-O</th>
<th>$T1$ WL</th>
<th>$T1$ JC</th>
<th>$T1$ WS</th>
<th>$T1$ NWS</th>
<th>$T1$ PCJ</th>
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<th>$T1$ DTJ</th>
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†T2 Task Performance, T2 OCB-I, and T1 workload regressed onto T2 OCB-O were transformed using a reflect and square root transformation.

** p = 0.01, * p = 0.05.
4.3 Discussion of Results from Study 2 (Longitudinal Study)

The primary purpose of this longitudinal study was to investigate the stability of the stressor-performance relationships identified in Study 1 (see Chapter 3). In Study 1, a cross-sectional investigation was undertaken and the results provided some indications of the relationships between stress-related working conditions and multiple performance measures. In general, these relationships signalled the need for organisations to consider JSM and justice conditions as a means of enhancing both in-role and discretionary performance. The cross-sectional study also suggested that job performance should be separated into in-role and extra-role types, given the unique relationships the JSM-justice working conditions had with each performance measure. These relationships may take a variety of forms, including interaction and nonlinear associations, although in the cross-sectional study, the direct linear pathways involving both the JSM and justice measures were more dominant.

The current longitudinal study provided findings that can be used to assess the stability of results presented in the cross-sectional study. Overall, the significant $R^2$ results from the longitudinal analysis supported the previous suggestion that the effects of stress-related working conditions include employee performance (not just health and attitudinal variables) (Jex, 1998; Jex et al., 2006). These findings also indicated that the JSM-justice framework can provide useful insights into the stressor-performance relationship. Further, the longitudinal study helped to extend findings that were not significant in the cross-sectional study of the current investigation, such as the U-shaped relationship between the JSM components and the performance measures. Finally, the longitudinal study provided more information about the relationships that were no longer significant after 17 months.
These relationships were the direct linear relationships involving justice measures and the relationships involving interactions among independent variables. Findings from the longitudinal study will be discussed in more detail in the following sections.

4.3.1 The long-term influence of common stress-related working conditions.

At a general level, the results of the longitudinal analysis reinforce the diverse and long-term influence of stress-related working conditions. The overall regression equations for the three outcome variables were relatively small, however the amount of $R^2$ attributed to the combined JSM-justice model was still significant. The weak but significant outcomes were consistent with those from Study 1 and, when taken together, suggest that the stress-related working conditions may be as important in contributing to an employee’s ability to perform work roles as they are in shaping employee health and attitudes (Jex, 1998; Jex et al., 2006). Results regarding relationships that were found to be stable after 17 months are particularly important in that these results underline previous longitudinal research indicating that the effects of stress-related working conditions can be enduring (Eriksen, 2006; Kivimaki et al., 2005; Kouvonen et al., 2008).

Although the regression results generally support the notion that stress-related working conditions could explain job performance as they do wellbeing, the longitudinal results highlight that the relationship involving performance is likely to be much more modest than are those involving health and attitudinal outcomes. As mentioned in the discussion of the results from the cross-sectional analysis (see Chapter 3), the modest $R^2$ values are characteristic of stress research (Frese, 1985;
Kohn & Schooler, 1982), particularly when job performance is the outcome of interest (Jackson & Schuler, 1985; Tubre & Collins, 2000). The moderate amount of explained variance found in the current longitudinal study (6.6 per cent for OCB-I, 11.4 per cent for OCB-O and 13.1 per cent for task performance) was comparable to other longitudinal stressor-performance studies. For example, Sargent and Terry (2000), using an industrial sample, found that the overall JSM model inclusive of interactions explained 5 per cent of objective performance after six weeks.

An aspect of the cross-sectional findings that the longitudinal results were unable to support involves the influence of personal characteristics. The cross-sectional findings showed that demographics, particularly age and gender, were significantly associated with OCB measures. However, results from the longitudinal analysis revealed that the $R^2$ value for the demographics step entered first into the regression was not significant, and that personal characteristics did not contribute to the amount of overall explained variance. These results highlight the mixed findings from previous research examining the role of personal characteristics in the stress experienced by police personnel. Some studies found the effects of these personal variables to be significant (Collins & Gibbs, 2003; He et al., 2005; Newman & Rucker-Reed, 2004), whereas others did not (Biron & Bamberger, 2010; Koslowsky et al., 1990; Martinussen et al., 2007). Results from the longitudinal study support the latter group of research, and suggest that more longitudinal research may be needed to clarify the longer-term role of demographic variables in the stressor-outcome relationship further.

Another important finding from the current longitudinal study is that, although the predictive capacity of the JSM variables was generally much larger than the
organisational justice dimensions, organisation justice appeared to become more prominent over the 17-month time lag, and its effects were significant mainly in relation to task performance. The amount of variance the overall justice model could explain in the longitudinal study ($R^2 = .068$ on task performance) was larger than that accounted for by the justice model in the cross-sectional study ($R^2$ between .014 and .022 on OCB measures). This result suggests that organisational justice is a salient dimension of the work environment that exerts more influence over employee performance in the long term. Further, the increased prominence of justice in the longitudinal data reinforces a tentative explanation that justice-related decisions are generally made on a less frequent and more sporadic basis (see Section 3.3.2.2). However, decisions involving performance reviews, promotions, and re-assignment are still very important to employees and, as a result, longer lengths of time may be required for justice to reveal its impact more fully.

It should be noted that the effects of justice were found to remain significant only when regressed against task performance in the longitudinal study. This finding indicates that, while both task performance and OCB can be influenced by justice perceptions in the short term, task performance is more likely to be affected over a longer period of time. The finding reflects the suggestion that withdrawing task performance is more difficult than adjusting non-task performance due to the contractual nature of the former (Organ, 1988; Tepper, Lockhart, & Hoobler, 2001). As a result, it may take longer for the effects of justice to show on task performance. Research has provided limited evidence of the differential influence of justice on in-role and extra-role performance measures due to greater interest in the relationship between justice and extra-role performance, and doubt has been raised regarding the
capacity of justice to influence task performance (Zapata-Phelan, Colquitt, Scott, & Livingston, 2009). The current finding provides some support for the unique, longer-term impact of justice perceptions on different performance types, particularly task-based performance. Together with future longitudinal studies, this finding may help further clarify the complex relationship between justice and a variety of performance measures.

It is also important to note the role of interactional justice in the current longitudinal results. Interpersonal treatment variables (i.e., interpersonal and informational justice) captured the majority of the variance accounted for by the justice model when regressed against task performance. These two interactional justice measures were also the only justice types to display unique relationships with employee performance in the longitudinal study. These results reinforce previous research indicating that fair treatments people receive during reward allocation decisions are valued more than fair outcomes (distributive justice) or fair procedures (procedural justice) (Cropanzano et al., 2002; Turnley, Bolino, Lester, & Bloodgood, 2003). Results that informational justice was a distinct justice type capable of predicting important employee outcomes are also informative, given that research operationalising interactional justice as two separate constructs is uncommon (Colquitt, 2001) although there is support for the separation (Colquitt, 2001; Greenberg, 2006).

4.3.2 The predictive capacity of the JSM-justice framework.

Findings from the longitudinal study confirm the cross-sectional findings that the combined JSM-justice framework was as appropriate for investigating employee performance as it was for health and wellbeing outcomes (e.g., Chambel & Curral,
2005; Dollard et al., 2000; Fox et al., 1993). The value of the JSM-justice framework has until now been reported mainly in studies that have examined health outcomes (e.g., De Vogli et al., 2007; Head et al., 2007; Kivimaki et al., 2006). The current findings have therefore extended the utility of the JSM-justice framework, and contributed to the stress-justice literature.

In relation to the nature of the relationships between the JSM-justice working conditions and employee performance, the models that were found to have predictive value longitudinally were the direct linear additive JSM, the curvilinear JSM model involving work-based support, and the curvilinear justice model involving the interactional justice variables. Unlike the cross-sectional results, the additive justice model was not statistically significant. Further, the effect sizes associated with the procedural-based justice variables did not reach significance, preventing further exploration of the impact of procedural-voice justice found in the cross-sectional study. The following sections discuss the additive and curvilinear models found in the longitudinal study in detail.

**4.3.2.1 The predictive value of the additive model involving workload demands.**

The only additive model found to be significant in the longitudinal study was the additive JSM model for OCB measures, and the only JSM variable contributing to the overall additive JSM model was workload. The potential of workload as a stress-related predictor of employee performance has been relatively under-examined in field studies as compared to other demand stressors, and previous findings have not been as consistent as those involving other demand stressors such as role ambiguity, role conflict and job insecurity (Gilboa et al., 2008). Most
research has not assessed the stability of the relationship between workload and employee outcomes due to the reliance on cross-sectional designs (Glaser et al., 1999; Morrison & Payne, 2001), while others could only observe the short-term effects of workload in experimental conditions (Parkes, 1995; Spector et al., 1988). In contrast, the current investigation was undertaken in a field setting, and was able to reveal that workload was associated with performance after a 17-month time lag. The workload-performance relationship identified in this study was also quite strong, with workload recording the highest beta value among all variables found to be statistically significant longitudinally ($\beta$ of workload for OCB-I = .256, $p = 0.01$, $\beta$ of workload for OCB-O = .222, $p = 0.01$). The size of these beta values was comparable to those reported in previous experimental studies. For example, Glaser and colleagues (1999) found workload to have a beta value of .17 when regressed against employee performance in experimental conditions.

Another interesting result involving the significant effects of workload demands is that workload demands had positive rather than negative influence on performance measures. One of the hypotheses tested in the current investigation was that, when confronted with heightened job demands, employees would reduce their non-task performance rather than their in-role performance to avoid serious repercussions associated with the latter (Organ, 1997). Findings from both the cross-sectional and longitudinal phases of the current investigation revealed that the impact of workload demands was greater on OCB than on task behaviour as hypothesised. However, the relationship was in a positive direction, suggesting that higher workload demands enhanced rather than undermined extra-role performance. These results do not support the popular hypothesis that heightened job demands
represent a threat to performance (Cynkar, 2007). Instead, the result points toward the challenge-hindrance hypothesis discussed earlier that posits that employees might perceive workload as challenge-based rather than hindrance-based in performing their job (Cavanaugh et al., 2000; LePine et al., 2005). Alternative explanations for the positive effects of workload demands have also been discussed earlier. These explanations include the possibility that employees who had higher workloads simply achieved more at work (Beehr et al., 2000), and that increasing pro-social performance in response to heightened job demands may represent an opportunity to protect, replenish, or cultivate social resources (Hobfoll & Shirom, 2000). Any of these reasons could potentially explain the positive relationship between workload demands and performance, and exploring these reasons further would be worthwhile.

Unlike the cross-sectional study in which a three-way interaction model (workload x job control x work-based social support) was found to be statistically significant, none of the interaction models tested in the longitudinal study received support. Except for the original JSM studies (Karasek, 1979; Karasek et al., 1981; Karasek et al., 1982), few studies have tested and supported the synergistic effects of the three-dimensional JSM, and much of the support has been based on cross-sectional studies (Hausser et al., 2010; van der Doef & Maes, 1999). Although there are exceptions, the additive JSM has received stronger support (Hausser et al., 2010; van der Doef & Maes, 1999). Results from the longitudinal study suggest that, consistent with previous studies, the additive rather than the interactive JSM provides a more accurate assessment of the relationships between demands-control-support and stress-related outcomes.
4.3.2.2 The predictive value of the curvilinear models involving social resources.

The other working conditions that showed significant results after 17 months were work-based social support, interpersonal justice and informational justice. Each of these conditions incorporates important interpersonal transactions in the workplace (Bies & Moag, 1986; Chiaburu & Harrison, 2008), thus these conditions were collectively termed social resources, or relationship-based resources, in the current investigation.

Results involving social resources may raise the question of the difference between social support and interactional justice measures. Indeed research has called for empirical studies to investigate if these relationship-based variables are synonymous (Fujishiro & Heaney, 2009). The correlation and regression results from the current investigation showed that social support and interactional justice measures were associated with different performance types, suggesting that these concepts were distinct. The current results are supported by studies that found that organisational justice tapped additional elements of the psychosocial working conditions that contribute to employee health (e.g., Kivimaki et al., 2004; Eloavainio et al., 2002; Ylipaavalniemi et al., 2005; see Section 2.3.2.1 for a more thorough discussion of this topic).

Findings involving the positive effects of social resources from the longitudinal study are noteworthy in several aspects. The current results are consistent with previous findings that social support from team members and supervisors positively influenced job performance (e.g., Deckop, Cirka, & Andersson, 2003; Hauck, Snyder, & Cox-Fuenalida, 2008; Podsakoff et al., 1990).
The current results also emphasise the crucial role of social affiliation at work reported in previous stress-justice research (Judge & Colquitt, 2004; Zohar, 1995). In particular, findings involving social resources highlight the significance of agent-referenced justice types (i.e., interactional justice, interpersonal justice), which have been increasingly identified as antecedents of organisational outcomes including task performance and OCB over and above organisation-referenced justice types such as distributive justice (Turnley et al., 2003). From the perspective of the COR theory (Hobfoll, 1998), the prominent role of social resources discovered in the longitudinal study indicates that employees may value relationship-based resources at work more than economic resources such as job control or fair rewards.

The effects of social resources found in the current longitudinal study were associated with both in-role and extra-role performance types. Specifically, work-based social support was predictive of OCB-O, while the social justice elements (interpersonal and informational justice) were associated with task performance. The results suggest that enhanced productive behaviour can be achieved if social resources are available for both day-to-day operations (i.e., social support) and during the more sporadic periods of reward allocation (i.e., interpersonal and informational justice).

In regard to the findings that interpersonal and informational justice measures were associated more strongly with task performance, these findings were unexpected given that these two justice measures were hypothesised based on the agent-referenced framework (Bies & Moag, 1986) to be more closely associated with OCB. These findings suggest that, instead of regarding relationship-based justice exclusively within the agent-referenced exchange framework, both the
system-referenced and agent-referenced exchange assumptions may be considered (Colquitt et al., 2001). Burton, Sablynski and Sekiguchi (2008) supported this notion and argued further that the agent component portion is likely to be larger than the system component portion when the exchange involves interactional justice. However, the current study found that employees considered the system component of an exchange more than they did the agent component. That is, employees perceived fair interpersonal treatments as a result of organisation-wide, collective effort, rather than as a result of the individual effort of the supervisor. In response, employees reciprocated by increasing productive behaviour that benefited the organisation more directly (i.e., task performance). Since few studies have investigated whether agent versus system exchange may operate simultaneously but to a varying degree, future studies would benefit from expanding this research. For example, studies could include tests for mediating and/or moderating effects of leader-member exchange to investigate the agent component of interactional justice (Burton et al., 2008; Johnson et al., 2010), whereas organisational commitment may be appropriate for explaining the system component of interactional justice (Sholihin & Pike, 2009).

The relationships between social resources and performance found in the longitudinal study are also notable because of their curvilinearity. Evidence of curvilinear effects of social support at work, interpersonal justice and informational justice indicate that social resources were crucial in promoting employee performance as described earlier, but their influence had an optimal level. Figures 4.1 to 4.3 illustrate the curvilinear relationships found. Each graph has been divided to represent three groups: low, moderate and high levels of social support (or
justice). The predominantly positive, concave downward curve with the steeper slope in the ‘low’ section was observed in all cases, suggesting that employees who received moderate levels of co-worker support (or whose perception of fair treatments or information sharing was not too strong or too weak) contributed the highest level of performance, followed by those with high levels of social resources. It is possible that employees whose levels of performance were the highest were more task-oriented (Bass & Dunteman, 1963) and preferred not to be distracted from accomplishing their tasks by socialising too little or too excessively. As a result, their social connection during daily work and reward distribution was kept within a moderate to high level, rather than at a low to moderate level. In comparison, employees in the ‘high’ group (i.e., those who received more social support at work or those who had high levels of perceived fairness in interpersonal treatments) may have contributed a little less in terms of performance because they were more socially connected and favoured spending time socialising rather than focusing on their performance. While this explanation is somewhat speculative (and therefore requires further investigation), the gentler gradient of the graph in the high section relative to the steeper gradient of the low section suggests that employees receiving high levels of social resources, rather than low levels, were more likely to contribute different types of performance. In summary, social resources should be balanced at the moderate to high levels, rather than at the low levels.
Figure 4.1

Curvilinear relationship between work-based social support and OCB-O.

OCB-O

Support at work

Figure 4.2

Curvilinear relationship between interpersonal justice and task performance.

Task performance

Interpersonal justice
Figure 4.3 Curvilinear relationship between informational justice and task performance.
The curvilinear relationships involving social resources and performance have several theoretical implications. There is doubt whether curvilinear models can offer additional value over and above linear stress models (Taris, 2006). Evidence of curvilinear relationships found in the present study supports the need to test for nonlinearity (Fletcher & Jones, 1993; Rydstedt et al., 2006). The current results also reinforce past cross-sectional studies that found that intermediate, rather than low or high levels, of resourceful working conditions benefited employee wellbeing, job satisfaction (de Jonge & Schaufeli, 1998; Warr, 1987) and performance (Jamal, 1985; Srivastava & Krishna, 1991). Finally, curvilinear relationships were shown to be more dominant in the current longitudinal study than in the previous cross-sectional study, which was identified mostly by linear relationships. This result finds support from van Dierendonck and colleagues (2001), who found the curvilinear model of the relationship between perceived equity and emotional exhaustion to provide a better fit than the linear model after one year.

There is considerable scope for adding to the findings involving curvilinearity. Future research should include tests for curvilinearity along with linear associations to increase the possibility for identifying significant relationships. Researchers could investigate areas such as mediating/moderating influence of individual characteristics on curvilinear relationships (de Jonge & Schaufeli, 1998). Further, future research could explore curvilinear associations involving justice measures. The current results extend previous studies by demonstrating that curvilinearity may not only exist in relationships involving traditional stress-related working conditions (Warr, 1987), but may also exist in relation to justice perceptions (van Dierendonck et al., 1996; 2001). In particular, future research could focus on interpersonal justice
types, as the current investigation showed that the curvilinear justice-performance relationships may not necessarily occur because of fair/unfair rewards (Adams, 1965). It is possible that these relationships stem from fair/unfair interpersonal treatments. Finally, the outcomes of the current study suggest that nonlinearity may have a stronger presence than linear effects after some time has passed (van Dierendonck et al., 2001). However, except for a few notable studies (Makikangas, Feldt, & Kinnunen, 2007; Rydstedt et al., 2006; van Dierendonck et al., 1996, 2001), there is very little research on the long-term curvilinear relationship between working conditions and outcomes. Whether or not the time factor plays a role in the presence and strength of nonlinear effects remains inconclusive, and there is a need for future research to investigate this important area further.

### 4.3.3 Longitudinal support for differentiating between performance measures.

Overall, the results of Study 2 confirmed those of Study 1 that stress-related working conditions had unique associations with task and non-task performance. These results support previous cross-sectional studies and the proposal that employee performance should be differentiated in stress research to ensure more consistent results (Bakker et al., 2004; Jex et al., 2006; Motowidlo & Scotter, 1994). (Sliter et al., 2012). The results from Study 2 also suggest that it is appropriate to examine multiple performance measures within a stress-justice framework, which has, until now, been used primarily to investigate health and attitudinal outcomes (Elovainio et al., 2009; Ferrie et al., 2006; Kivimaki et al., 2006). Notably, the combined JSM-justice framework employed in the current investigation could explain variance in extra-role performance measures that have rarely been
investigated in stress studies. The current research suggests that the combined framework could be a viable alternative for future stress research aimed at exploring extra-role performance further.

4.3.4 Summary of Study 2.

This chapter has presented the method, results and a discussion of results of Study 2, the longitudinal component of the current investigation. Overall, the JSM and justice models measured at Time 1 were linked deferentially, and moderately, to in-role and extra-role performance types at Time 2. The JSM models showed some prospective associations with extra-role performance, while some of the variance in in-role performance was attributed to the justice model. In terms of individual predictors, workload, social support and relationship-based justice (i.e., interpersonal and informational justice) contributed to the overall predictive framework after controlling for age, gender, length of employment and Time 1 outcomes. The positive linear and curvilinear models proved the most capable of explaining variance in performance outcomes, whereas interactions between the JSM or justice variables were not found.

The following chapter, Chapter 5, will integrate the cross-sectional and longitudinal results and discuss the trends evident across both studies. Similarities and differences between the two studies will be highlighted, along with a discussion of the implications and limitations of the current investigation.
The overarching aim of the present thesis was to examine if and how prominent stress-related working conditions were longitudinally associated with multiple job performance behaviours. The stress-related working conditions were drawn from the Job Strain Model (JSM) (Karasek & Theorell, 1990) and organisational justice theory (Colquitt, 2001). Three forms of employee performance behaviours were included, and these were in-role behaviours, organisational citizenship behaviours directed at other individuals (OCB-I) and organisational citizenship behaviours directed at the organisation (OCB-O). A comprehensive series of analyses involving tests for linear, nonlinear and interactive relationships were undertaken, and in doing so the associations between work-based conditions and employee performance were explored in a detailed manner. Specific hypotheses regarding these associations were formed, and two studies were undertaken to assess the hypotheses. Study 1 was a cross-sectional investigation that sought to identify unique relationships between the JSM and justice working conditions and performance measures, and to provide the baseline for determining the stability of the relationship over time. Study 2 was a longitudinal study, and aimed to help clarify the longer-term effects associated with the JSM-justice working conditions over a 17-month time lag. The results and discussions of findings from Studies 1 and 2 can be found in Chapters 3 and 4.

Chapter 5 is the final chapter of this thesis and will consist of the following sections. The first section presents a summary of results from Studies 1 and 2, with reference to both the significant and non-significant findings identified in each
study. The second section provides an overall discussion of these findings, focusing particularly on trends across both phases of the study, the theoretical and practical implications of these trends, and suggestions for future research. The third section refers to key limitations to consider when interpreting the results of the current investigation, and the fourth section provides a summary of the study contributions. The fifth section brings the chapter and the thesis to a close with concluding remarks.

5.1 Summary of Findings from Studies 1 and 2

Table 5.1 summarises the results of the hypothesis testing from the cross-sectional (Study 1) and the longitudinal (Study 2) studies. Several hypothesised relationships between the JSM-justice working conditions and performance measures were observed in Study 1, with the results fully supporting Hypotheses 1a, 1b, 2a, 2d, 3d, 4c and 4d; partially supporting Hypotheses 2b, 2c, 3a and 6b; and rejecting hypotheses 3b, 3c, 3e, 4a, 4b, 5a, 5b and 6a. The longitudinal design of Study 2 allowed the relationships between the JSM-justice working conditions and job performance to be observed over time, and regression results indicate that only a handful of relationships remained significant after 17 months. The only longitudinal hypothesis that received full support was Hypothesis 7a. Hypotheses 7b, 8a, 8b, 12a and 12b received partial support, and the remainder of the hypotheses based on longitudinal analyses failed to receive support.
Table 5.1

*Results of hypothesis testing.*

<table>
<thead>
<tr>
<th>Hypothesis</th>
<th>Degree of support</th>
</tr>
</thead>
<tbody>
<tr>
<td>H1a: Job demands, job control and social support are associated with performance measures after accounting for employee age, gender and length of employment.</td>
<td>Full support</td>
</tr>
<tr>
<td>H7a: Job demands, job control, social support and justice perceptions experienced at Time 1 are associated with performance measures at Time 2 after accounting for employee age, gender and length of employment at Time 2 and performance scores at Time 1.</td>
<td>Full support</td>
</tr>
<tr>
<td>H1b: Organisational justice variables are associated with performance measures after accounting for variance attributed to the JSM variables.</td>
<td>Full support</td>
</tr>
<tr>
<td>H7b: Organisational justice variables at Time 1 are associated with performance measures at Time 2 after accounting for variance attributed to JSM variables at Time 1.</td>
<td>Partial support</td>
</tr>
<tr>
<td>H2a. There are direct linear relationships between the individual components of the JSM and the two measures of employee performance.</td>
<td>Full support</td>
</tr>
<tr>
<td>H8a. There are direct linear relationships between the individual components of the JSM at Time 1 and the two measures of employee performance at Time 2.</td>
<td>Partial support</td>
</tr>
<tr>
<td>H2b. There is a direct negative relationship between job demands on performance, and the relationship is stronger with OCB than with task performance.</td>
<td>Partial support</td>
</tr>
<tr>
<td>H8b. There is a negative direct relationship between job demands at Time 1 on performance at Time 2, and the relationship is stronger with OCB than with task performance.</td>
<td>Partial support</td>
</tr>
<tr>
<td>H2c. There is a positive direct relationship between job control on performance, and the relationship is stronger with task performance than with OCB.</td>
<td>Partial support</td>
</tr>
<tr>
<td>H8c. There is a positive direct relationship between job control at Time 1 and performance at Time 2, and the relationship is stronger with task performance than with OCB.</td>
<td>Not supported</td>
</tr>
<tr>
<td>Hypothesis</td>
<td>Degree of support</td>
</tr>
<tr>
<td>---------------------------------------------------------------------------</td>
<td>-------------------</td>
</tr>
<tr>
<td><strong>H2d.</strong> There is a positive direct relationship between social support and employee performance, and the relationship is stronger with OCB than with task performance.</td>
<td>Full support</td>
</tr>
<tr>
<td><strong>H8d.</strong> There is a positive direct relationship between social support at Time 1 and employee performance at Time 2, and the relationship is stronger with OCB than with task performance.</td>
<td>Not supported</td>
</tr>
<tr>
<td><strong>H3a.</strong> There are direct linear relationships between the individual components of organisational justice and the two measures of employee performance.</td>
<td>Partial support</td>
</tr>
<tr>
<td><strong>H9a.</strong> There are direct linear relationships between the individual components of organisational justice at Time 1 and the two measures of employee performance at Time 2.</td>
<td>Not supported</td>
</tr>
<tr>
<td><strong>H3b.</strong> There is a positive direct relationship between distributive justice and performance, and the relationship is stronger with task performance than with OCB.</td>
<td>Not supported</td>
</tr>
<tr>
<td><strong>H9b.</strong> There is a positive relationship between distributive justice at Time 1 and performance at Time 2, and the relationship is stronger with task performance than with OCB.</td>
<td>Not supported</td>
</tr>
<tr>
<td><strong>H3c.</strong> There is a positive direct relationship between procedural justice and performance, and the relationship is stronger with task performance than with OCB.</td>
<td>Not supported</td>
</tr>
<tr>
<td><strong>H9c.</strong> There is a positive direct relationship between procedural justice at Time 1 and performance at Time 2, and the relationship is stronger with task performance than with OCB.</td>
<td>Not supported</td>
</tr>
<tr>
<td><strong>H3d.</strong> There is a positive direct relationship between interpersonal justice and performance, and the relationship is stronger with OCB than with task performance.</td>
<td>Full support</td>
</tr>
<tr>
<td><strong>H9d.</strong> There is a positive direct relationship between interpersonal justice at Time 1 and performance at Time 2, and the relationship is stronger with OCB than with task performance.</td>
<td>Not supported</td>
</tr>
<tr>
<td><strong>H3e.</strong> There is a positive direct relationship between informational justice and performance, and the relationship is stronger with OCB than with task performance.</td>
<td>Not supported</td>
</tr>
<tr>
<td>Hypothesis</td>
<td>Degree of support</td>
</tr>
<tr>
<td>---------------------------------------------------------------------------</td>
<td>-------------------</td>
</tr>
<tr>
<td>H9e. There is a positive direct relationship between informational justice at Time 1 and performance at Time 2, and the relationship is stronger with OCB than with task performance.</td>
<td>Not supported</td>
</tr>
<tr>
<td>H4a. There is a two-way interaction of demands and control on performance, such that the negative relationships between high demands and performance are reduced under conditions of high control.</td>
<td>Not supported</td>
</tr>
<tr>
<td>H10a. There is a two-way interaction of demands and control at Time 1 on performance at Time 2, such that the negative relationships between high demands and performance are reduced under conditions of high control.</td>
<td>Not supported</td>
</tr>
<tr>
<td>H4b. There is a two-way interaction of demands and social support on performance, such that the negative relationships between high demands and performance are reduced under conditions of high social support.</td>
<td>Not supported</td>
</tr>
<tr>
<td>H10b. There is a two-way interaction of demands and social support at Time 1 on performance at Time 2, such that the negative relationships between high demands and performance are reduced under conditions of high social support.</td>
<td>Not supported</td>
</tr>
<tr>
<td>H4c. There is a three-way interaction of demands, control and support on performance, such that the negative relationships between high demands and performance are reduced under conditions of high control and high social support.</td>
<td>Full support</td>
</tr>
<tr>
<td>H10c. There is a three-way interaction of demands, control and support at Time 1 on performance at Time 2, such that the negative relationships between high demands and performance are reduced under conditions of high control and high social support.</td>
<td>Not supported</td>
</tr>
<tr>
<td>H4d. The impact of the JSM interactions is stronger on OCB than on task performance.</td>
<td>Full support</td>
</tr>
<tr>
<td>H10d. The impact of the JSM interactions at Time 1 is stronger on OCB at Time 2 than on task performance at Time 2.</td>
<td>Not supported</td>
</tr>
<tr>
<td>H5a. Low distributive justice and high procedural justice interact to produce task performance.</td>
<td>Not supported</td>
</tr>
</tbody>
</table>
The results of the hypothesis testing indicate that three relationships were statistically significant in both Study 1 and Study 2. First, the JSM-justice model could explain variance in each type of performance regardless of whether the analysis was synchronous or lagged. Second, workload demands were shown to have a positive relationship with performance both cross-sectionally and longitudinally. Finally, curvilinear relationships relating to justice components were revealed across the two studies. In particular, effects attributed to interpersonal justice were identified across the two time points.

While some relationships between stress-related working conditions and performance were found in both Studies 1 and 2, other relationships were distinct to either one or the other, suggesting that there were temporal or episodic
characteristics of these relationships. First, the justice model could explain variance in the three performance measures in addition to the JSM in the cross-sectional study, whereas only task performance was associated with justice after the JSM was accounted for in the longitudinal study. The same could be said of the JSM variables that were only associated with all three performance types cross-sectionally. In the longitudinal study, the JSM explained variance in the OCB measures but not in task performance. In other words, the long-term influence of justice measures appeared to hold for task performance, while the influence of the JSM was ongoing only for the OCB measures.

The stability of the relationships between psychosocial working conditions and performance outcomes after a period of 17 months could be observed when comparing the results from Study 1 with those from Study 2. Specifically, direct linear relationships involving job control, social support and interpersonal justice, and interaction-based relationships involving job demands, job control and social support were only evident in the cross-sectional study. These relationships were not found in the longitudinal study. In contrast, the inverse U-shaped relationships between work-based support and OCB were only found in the longitudinal analysis. In fact, this curvilinear relationship and curvilinear relationships involving interactional justice types were among the strongest relationships found in the longitudinal study. The strength of these curvilinear associations was in sharp contrast to the general absence of direct linear and interaction-based associations involving resource-based working conditions in Study 2. Another noteworthy trend in regard to the curvilinear results was that the effects of relationship-based resources were found to be stronger than economic-oriented resources such as job
control and procedural justice. These economic resources were not found to have any significant long-term relationships with performance measures. Another economic resource, distributive justice, was not shown to be associated with job performance measures in either phase of the current investigation.

The findings from the current thesis have provided some useful preliminary insights into the relationships between stress-related working conditions and performance measures under investigation. The following section will discuss the implications of these relationships for research and practice, with a focus on the strength, direction and stability of the stressor-performance relationships found across Studies 1 and 2.

5.2 Overall Discussion of Results from Studies 1 and 2

The aim of this section is to discuss important findings from the cross-sectional and longitudinal studies, and highlight the theoretical and practical implications of these results. Key findings referred to in this section include the relationship between stress-related working conditions and job performance, the predictive value of the JSM-justice framework including the additive JSM model, the justice model, and the curvilinear model, and the importance of differentiating between multiple performance types.

5.2.1 The relationship between stress-related working conditions and job performance.

Findings from the cross-sectional and longitudinal studies provided firm indications of the performance-related effects associated with common working conditions after accounting for personal characteristics of the sample under investigation. More specifically, the relationships between performance measures
and stress-related working conditions were shown to be independent of the effects associated with age, gender and years in service of police officers, and these relationships continued to be observed after 17 months. The independent effects associated with stress-related conditions support previous research reporting the link between organisational stressors and police health and performance after controlling for personal variables (Collins & Gibbs, 2003; McCarty et al., 2007; Morash et al., 2006). The longer time lag of 17 months also enabled the current investigation to support previous findings indicating that day-to-day working conditions, such as the JSM and justice elements, have long-lasting effects (Eriksen, 2006; Kivimaki et al., 2005; Kouvonen et al., 2008).

Results supporting the long-term influence of the working conditions that employees are constantly in contact with have at least two important implications. From a practical stress prevention perspective, the findings support comprehensive stress management programmes that take into account common stress-related organisational conditions above and beyond personal characteristics (Murphy & Sauter, 2003). Prior research indicates that job stress prevention initiatives need to address characteristics of the workplace (e.g., levels of job demand, decision-making input, and the extent to which employees are treated fairly) (Van Yperen & Hagedoorn, 2003), as well as the worker’s capacity to cope with demanding working environments (e.g., time management, relaxation skills, personal resilience) (Fernet, Guay, & Senecal, 2004; Kim, Shin, & Swanger, 2009; Schaubroeck & Merritt, 1997). However, the occupational health and legislation existing in most western countries states that employers have a duty of care to, first and foremost, address harmful working conditions and only then to seek ways of protecting employees in a
high-risk environment (European Agency for Safety and Health at Work, 2007; Health and Safety Executive, 2009). Given that working conditions can be modified, and that the outcomes can benefit employers and employees, targeting environmental factors may present valuable opportunities for developing sustainable stress prevention/reduction strategies (DeJoy et al., 2010; Gershon et al., 2009; Kompier, Cooper, & Geurts, 2000; Sauter et al., 1990). Several studies have gone further to suggest that modifying the sources of stress inherent in the work environment may be the most effective method by which organisations can reduce workplace stress (Cartwright & Cooper, 2002; Sparks & Cooper, 1997). This claim is supported by empirical studies that have revealed that work-related factors are better predictors of occupational stress and burnout than personal variables such as age, race, gender or personality type (Brown et al., 1996; Kop et al., 1999; Martinussen et al., 2007).

The findings supporting the long-term effects of common working conditions on employees suggest that having more information about day-to-day working conditions, especially in terms of their influence on employees’ capacity to undertake in-role and extra-role tasks, can be an important first step for organisations in becoming more proactive about managing employee stress. To assist in taking this first step, companies can use an evaluation tool such as The Management Standards Indicator Tool (Health and Safety Executive, n.d.a), which has been found valuable for benchmarking and intervention-targeting purposes (Houdmont, Kerr, & Randall, 2012), to measure job demands, job control and social support in the workplace including law enforcement.
The second implication of the results involving the relationship between stress-related working conditions and employee performance is in relation to contemporary law enforcement, which is often identified as a highly stressful occupation (Shane, 2010; Violanti & Aron, 1993). While acute stressors arising from operational policing duties, such as exposure to shootings and violence, account for some of this stress, organisational conditions such as high job demands, low job control and poor social support are often found to be more problematic (Hall et al., 2010; Lambert et al., 2010). In an effort to reduce costs and increase service output (two hallmarks of NPM), contemporary law enforcement, along with other public-sector human-service agencies, have been confronted with heavier workloads, more limited decision authority, and lower levels of interactions with supervisors (Brunetto & Farr-Wharton, 2005; Butterfield et al., 2005; Coyle-Shapiro & Kessler, 2000; Morland et al., 1997). The findings from the current study reinforce prior NPM-focused research, highlighting the impact of organisational stressors, and emphasising the need for managers to target these stressors when planning strategies to prevent/reduce the negative impact of stress and to maintain higher levels of performance among policing personnel. As already mentioned, psychological working conditions are receptive to change. In view of the mutually beneficial outcomes of work-based stress prevention strategies, initiatives that take into account day-to-day working conditions may enhance the capacity of law enforcement agencies to deal with the challenges of modern policing.

5.2.2 The predictive value of the JSM-justice framework.

Another important finding from the current research is that the JSM-justice model provides an appropriate conceptual framework for clarifying multiple
performance measures, including extra-role types. Similar dual stress-justice frameworks have been employed extensively in the employee health and wellbeing literature (e.g., Eloainio et al., 2001; Head et al., 2007; Kouvonon et al., 2008). These combined frameworks have recently been extended to examine non-health outcomes such as job satisfaction, organisational commitment (Lambert et al., 2007) and work engagement (Siltaloppi et al., 2009), and the results provide increasing support for linking justice dimensions with more traditional job stress models. The consistent empirical support for the stress-justice frameworks across a variety of employee outcomes was an important reason why the current study adopted the combined JSM-justice model to examine employee productive behaviours. The support for the JSM-justice framework evident in the current study suggests that the combined model has potential to explore an even wider variety of employee outcomes, in particular, multiple measures of employee performance.

The second contribution of the finding involving the value of the JSM-justice framework is that this framework is capable of capturing working conditions that may be particularly prominent in policing environments. The JSM and justice models reflect important elements of the working conditions typically experienced in policing, particularly when considering the impact of large-scale public sector reforms and the introduction of more community-oriented styles of policing (Deschamps et al., 2003). In addition, findings from the current investigation also point towards a close fit between the JSM-justice framework and the study context, and respond to calls in the job stress literature for study models to be more closely aligned with the study context (McClenahan et al., 2007; Sparks & Cooper, 1999; Tennant, 2001). The close fit can help maximise opportunities for identifying
working conditions that are particularly relevant to the study participants. Future research undertaken within law enforcement and public sector contexts may therefore benefit from using a similar framework to identify influential working conditions. In practice, organisations operating within an NPM context could focus on monitoring the working conditions described in the JSM and organisational justice, given that these conditions are closely linked to the needs and circumstances of personnel in cost-conscious and resource-intensive NPM-oriented environments.

In relation to the capacity of specific components and models of the JSM-justice framework to predict the relationship between stress-related working conditions and performance, a number of results are worth noting. Overall, the JSM additive model was found to be dominant, with workload being the most salient element of the demands + control + support model. In addition, the justice dimensions involving interpersonal justice were significant in both Studies 1 and 2, as were the curvilinear models involving social resources (social support, interpersonal justice and informational justice). The following sections review the three noteworthy JSM-justice models and components in detail.

5.2.2.1 The JSM additive model.

The additive JSM was shown to consistently account for relatively large portions of variance across the three measures of employee performance behaviours. Results relevant to the JSM additive model are significant in that they help to clarify the breadth of outcomes associated with the JSM. The JSM, particularly the additive model, has been widely utilised and empirically supported in employee health research (Halbesleben & Buckley, 2004; Karasek & Theorell, 1990; Pelfrene et al., 2002). However, the JSM has been used to predict employee productive behaviours
to a much lesser extent, with the majority of existing studies focusing exclusively on in-role performance using cross-sectional designs (e.g., Beehr et al., 2000; Chambel & Curral, 2005; Fox et al., 1993). The current results support previous research that recognised the additive influence of key psychosocial job conditions of the JSM on employee performance, including OCB (e.g., Humphrey et al., 2007; Spector, 1986; Schaubroek & Fink, 1998), as well as research that reported the value of the JSM additive model longer-term (de Lange et al., 2003; Hausser et al., 2010; van der Doef & Maes, 1999).

A closer examination of the most salient components of the JSM additive model revealed the positive associations between workload demands and job performance in both phases of the current investigation. The relationship involving workload was stronger on OCB than on task-based productive behaviour as expected. However, the direction of the relationship was not as hypothesised. Instead of a negative association, workload was shown to have a positive relationship with employee performance, and the strength of this association was stronger in the longitudinal study. An implication of this result is that studies investigating workload may consider alternative hypotheses that incorporate the possible positive effects of stressors, rather than focusing exclusively on the more popular view that stressors are fundamentally deleterious (Cynkar, 2007). According to the challenge-hindrance hypothesis, the positive impact of workload demands could be explained by this stressor having a challenge-based relationship with performance behaviours (Cavanaugh et al., 2000). This hypothesis was developed in response to the lack of research on stressor dimensionality due to the tendency to treat stressors as if they were all the same. The hypothesis draws on the research of
Lazarus (Lazarus & Folkman, 1984) in distinguishing between stressors that are potentially threatening (hindrance) and those that could promote opportunities for gains (challenge) (LePine et al., 2005). The challenge-hindrance model has been steadily gaining empirical support, and workload has been among those stressors that may be perceived as a challenge rather than a hindrance to work (Cavanaugh et al., 2000; LePine et al., 2005). Some theoretical support for the association between positive work demands and employee performance can also be found in the JSM itself (Karasek & Theorell, 1990). The current results, particularly those from the longitudinal study, reflect the JSM perspective that stressors might not only be relevant as a source of adverse effects, but may also facilitate learning and improved performance in the workplace (Karasek & Theorell, 1990). These findings and implications warrant future examination to shed further light on the complex relationships between work-based demands and performance.

As to why a challenge-based stressor increases performance, the motivation pathways based on expectancy theory (Vroom, 1964) reviewed in Section 2.4.2.4 provide some explanation. The motivation pathways suggest that, when faced with a stressor, an employee’s belief in the proportionate relationship between the level of effort he or she will have to exert to cope with the stressor and the probability of success in doing so could influence his or her motivation to strive for favourable outcomes. Therefore, employees facing a challenge stressor are likely to believe that there is a positive relationship between the effort required and the chance of overcoming the stressor, and after managing the stressor, they will be rewarded with desired outcomes. Consequently, employees are motivated to try to overcome or at least better manage the stressor by increasing their performance output.
The motivation mechanism for explaining the positive relationship between work demands and employee performance could be extended with McGrath’s model of work stress and behaviours (1976). McGrath’s model highlights the key role of the nature of the tasks, suggesting that demands can be positively associated with performance because employees have the necessary task-relevant skills to meet those demands. The model may be particularly suitable for explaining the motivation mechanism in the law enforcement context because, in modern law enforcement agencies, the highly demanding nature of police work is offset by the highly trained task-relevant skills of the police officers, most of whom have been working in the profession for more than 10 years (e.g., Armeli et al., 1998; Brough, 2004; Davey et al., 2000; Hall et al., 2010; Victoria Police, 2011). If officers did not have the task-relevant skills, high levels of workload might lead to reduced performance in the long term, thus explaining the demands-as-hindrance results of other studies (Gilboa et al., 2008). Given the rationale of the McGrath’s model, future research could incorporate the measurement of task-relevant skills and abilities to account for differences in the nature of relationships between occupational contexts.

An important practical implication from the findings involving the positive workload-performance relationship is that heavy workload is not necessarily a working condition to avoid. Workload could present itself as an opportunity to achieve a goal, and for employees to use positive coping strategies such as efficient delegation, which may help them to achieve favourable results (Beehr & Glazer, 2005). Further, considering the pressure of ‘doing more with less’, especially in NPM-oriented organisations (Brunetto & Farr-Wharton, 2005; Bryett, 1999; Coyle-
Shapiro & Kessler, 2000), and the likelihood that workload will keep increasing in the future (European Commission, 2011), practitioners may benefit from focusing on ways to improve motivation mechanisms through workload, rather than pursuing the less likely option of reducing workload.

Another dimension of the JSM investigated in the current investigation was the synergistic model. This model suggests that low levels of performance will occur when the pace, volume and complexity of job demands are not matched by commensurate levels of job control and/or adequate levels of social support. The synergistic model was supported only in the cross-sectional study, reflecting the majority of previous JSM research, which found the model to be more relevant in cross-sectional investigations rather than in longitudinal ones (Hausser et al., 2010; Van der Doef & Maes, 1999). The absence of JSM interactions in the longitudinal study of the current investigation also points towards previous research that contested the longer-term applicability of the interaction component of the JSM (e.g., McClanahan et al., 2007; Park, 2007; van der Doef & Maes, 1999). Rejection of the JSM interaction model was particularly strong in studies that controlled for nonlinearity to prevent spurious interaction-based relationships from becoming significant (Fletcher & Jones, 1993; Rydstedt et al., 2006). Therefore, the inclusion of tests for curvilinearity may have reduced the measurable significance of interaction-based relationships in the current investigation. Future research may likewise include nonlinear tests to prevent misleading results in regard to interaction effects. A more thorough discussion of the tests for curvilinearity included in the present project is available in Section 5.2.2.3.
5.2.2.2 The justice models.

The second conceptual framework employed in the current investigation alongside the JSM was derived from multidimensional justice theory incorporating distributive, procedural, interpersonal and informational justice measures (Colquitt, 2001). The predictive value of organisational justice was supported in both studies of the current investigation to varying degrees. One interesting finding was that, while the JSM was found to be the dominant model in both Studies 1 and 2, justice could explain more variance in job performance in the longitudinal phase than in the cross-sectional phase. That is, the impact of justice-based working conditions became stronger, or remained significant, when other traditional working conditions did not, after the 17-month time lag had passed. This result is consistent with a large-scale, two-wave longitudinal study using a framework consisting of the interactional justice model, the JSM and the effort-reward imbalance (ERI) model (Kivimaki et al., 2004). The study, which was based on a predominantly male sample (67 per cent male) similar to the current investigation, found the effects of justice to remain significant on self-rated health after three years, whereas the effects of other more traditional stressors did not. Given that very little research has focused on comparing the amount of variance that justice can explain in comparison to more traditional stressors longer-term (Winefield et al., 2010), future studies may refer to the current findings in conjunction with findings from studies such as Kivimaki and colleagues (2004), to explore this area further.

A closer examination of the individual justice dimensions revealed several other important trends. Among the measures of justice investigated in the present research, interpersonal justice appeared to have the most stable effects. More
specifically, interpersonal justice was the only justice measure that was predictive of employee performance across the two time points. This result is supported by studies that shifted the attention from fair rewards and fair reward distribution to fair interpersonal treatment, and found that interpersonal justice had the strongest relationship with a variety of employee outcomes relative to other justice types (Colquitt, 2001; Robbins, Summers, Miller, & Hendrix, 2000; Rupp & Cropanzano, 2002). Further, the curvilinear relationships involving interpersonal and informational justice types found in the longitudinal phase of the current investigation provide support for research that distinguished between the two justice measures (e.g., Greenberg, 1993; Judge & Colquitt, 2004; Andersson-Straberg et al, 2007). Non-significant relationships involving other justice measures are also worth noting. The current study revealed that relationships associated with justice measures that were not significant cross-sectionally or longitudinally were direct positive relationships involving distributive, procedural and informational justice types, and interactive relationships between distributive and procedural justice. Findings on the non-significant relationships involving distributive justice are particularly noteworthy in that the findings reinforce previous research reporting weaker influence of distributive justice against other justice types (e.g., Blader & Tyler, 2003; Cropanzano et al., 2001a; Cropanzano et al., 2003).

Results relating to the strong impact of interpersonal justice and the lack of support for distributive justice have a number of implications for research and practice. In terms of theory, the results suggest that research would benefit from differentiating between multidimensional measures of justice, and from including relationship-focused justice types in examining stress-related outcomes (Colquitt,
2001). At the same time, more emphasis may be placed on justice in relation to quality treatments than on rewards, particularly in occupational contexts marked by demanding work, social isolation and reliance on co-workers, such as in law enforcement groups (Kop et al., 1999). In practice, managers should try to explain the basis of reward distribution decisions in a dignified, respectful and caring manner (Winefield et al., 2010). Research has recommended training programmes as an important means of helping organisations to instil fair management practices, given the evidence that supervisors may not always follow justice guidelines (Folger & Skarlicki, 2001). A programme for training leaders in procedural/interactional justice rule adherence, such as that by Skarlicki and Latham (2005), may be valuable for this reason. This line of research shows that managers who received training about following justice principles can potentially increase employees’ intrinsic motivation (Skarlicki & Latham, 2005), positive justice perceptions (Linna et al., 2011) and citizenship behaviour (Skarlicki & Latham, 1996), and decrease strains their employees experienced (Greenberg, 2006).

The current study also tested a justice interaction model based on the proposition that procedural fairness can offset the negative effects of unfavourable distributive outcomes (Brockner & Wiesenfeld, 1996; Greenberg & Folger, 1983; Shapiro & Brett, 1993). This interactive model was found to be non-significant across both cross-sectional and longitudinal studies of the current investigation. Rather than focusing on distributive justice, future studies may test for interactions between interpersonal and procedural justice, given that these two justice types have been found to be key predictors in much of the prior research (Blader & Tyler, 2003; Cropanzano et al., 2001a; Inoue et al., 2010). Future research may also examine the
moderating effects of justice on more traditional stressors, in line with conceptualising justice as an enabling resource, as suggested in the COR theory (Hobfoll, 1998) and JD-R theory (Demerouti et al., 2001). A number of previous studies, particularly those employing a stress-justice framework, indicated the value of investigating the interactions between work demands and justice perceptions. Research has reported the moderating role of overall justice on job demands (Janssen, 2000, 2001) and interactional justice on demands (Avery, Tonidandel, Volpone, & Raghuram, 2010; Greenberg, 2006). Organisational justice was also found to have a three-way relationship with job control and workload in predicting health-related outcomes including sickness absence (Elovainio et al., 2005) and self-rated health (Lindfors et al., 2009). Interactions between procedural justice, interactional justice, job demands and job control were reported for sickness absence (Elovainio et al., 2005). Future research focusing on performance outcomes may benefit from exploring hypotheses similar to those of the aforementioned studies. For example, future studies may hypothesise a two-way interaction of demands and interactional justice (or procedural justice) on performance, such that the negative relationships between high demands and performance are reduced under conditions of high interactional justice (or high procedural justice).

5.2.2.3 The curvilinear models.

Apart from examining additive and interaction effects associated with the JSM and justice-related working conditions, the current investigation also included tests for nonlinear effects. These tests uncovered a number of significant findings that generally involved social resources, that is, social support, interpersonal justice and informational justice. Curvilinear relationships involving social support were evident
in the longitudinal study, and curvilinear relationships involving justice components were identified in the cross-sectional and longitudinal studies. The significant role of curvilinear social resources supports research that recommends testing for nonlinearity to clarify the stressor-performance relationships, which are often assumed to follow a direct linear pathway (Rydstedt et al., 2006). In particular, effects associated with nonlinear justice that were evident in both Studies 1 and 2 add much-needed empirical support for the limited research on the curvilinearity of justice measures (van Dierendonck et al., 1996, 2001).

A noteworthy trend in regard to curvilinear relationships found in the current investigation is that, in the longer term, these relationships were shown to be more dominant than linear relationships. Specifically, social support was revealed to have additive effects in the cross-sectional study, whereas the effects were curvilinear in the longitudinal study. The $R^2$ of the justice curvilinear model was stronger in the longitudinal study, and this result is in line with the findings of van Dierendonck and colleagues (2001), who found that the curvilinear model of the relationship between perceived equity and emotional exhaustion provided a better fit than the linear model after one year. There is very little research exploring curvilinear relationships longer-term (with a few exceptions, such as Rydstedt et al., 2006 and Makikangas et al., 2007), thus there is still considerable scope to add to this line of research. For example, future research may consider examining how different lengths of time affect the existence and strength of curvilinearity in the stressor-performance relationship.

A practical implication of the findings involving the curvilinear effects of work-based social resources is that these findings indicate the crucial role of
balancing social resources to achieve optimal employee performance (Deckop et al., 2003; Podsakoff et al., 1990). It is worthwhile for organisations to provide social environments at work that are conducive to enhancing employee performance. However, the facilitation of favourable social environment should apply to both daily work (through social support) and periods of sporadic reward distributions (through interactional justice), with the levels of supply balanced to achieve optimal performance. Too much or too little social interaction could be harmful to performance, as employees may either not receive enough support or spend too much time socialising. Given the curvilinear nature of the relationship involving social resources, another practical implication is that management may put more emphasis on individualised initiatives that help specify optimal levels of these resources (Adams & White, 2005) rather than on population-based approaches that focus more on identifying mean levels of these working conditions (Mackay et al., 2004).

In relation to theory, results involving social resources highlight the value of applying resource-based theories, including the COR theory (Hobfoll, 1998) and social exchange theory (Blau, 1964). The COR theory provides considerable latitude in how resources are defined, and hence framing social support and organisational justice as potential resources for moderating people’s responses to threats is entirely in keeping with this theory. Social exchange theory (Blau, 1964), which describes the exchange mechanisms for gaining or replenishing resources guided by reciprocity rules (Gouldner, 1960), also provides theoretical support for evidence that job performance was exchanged for desirable relationship-based resources in the current investigation.
Although the current findings generally support the resource exchange theories, there is some reservation in regards to the relatively recent idea of match between resource and exchange type (Cropanzano & Ambrose, 2001; Cropanzano & Mitchell, 2005). The resource-matching theory suggests that economic and social transactions may be separated to assume differential relationships between performance measures and resource-oriented working conditions. The rationale for the resource-matching theory was supported in a number of previous studies examining trust, which was anticipated to create commitment, job satisfaction and OCB (Konovsky & Pugh, 1994; Pillai et al., 1999). The theory also led the current investigation to hypothesise that economic resources (e.g., job control, distributive justice) would link more closely with economic outcomes such as task performance, and that social resources (e.g., social support, interpersonal justice) would be more strongly associated with social outcomes such as OCB. However, two specific findings from the current investigation seem to contradict the rationale of the match theory. First, job control (resource provided by the organisation) was linked more closely with OCB-O (discretionary outcome) rather than task performance (contract-based outcome) in the cross-sectional study. Second, interaction-based justice measures (social resources) were more strongly associated with task performance in the longitudinal study. These findings suggest that the current employee sample may consider certain economic resources to be the result of individual effort from supervisor and colleagues, whereas specific social resources were perceived as an outcome of organisation-wide collective effort. The unclear results regarding the resource/exchange match may be influenced to a certain extent by the police context itself. In this setting, the strong need for organisational solidarity and opportunity to work closely with colleagues (Kop et al., 1999; Ralston & Chadwick, 2010;
Rothwell & Baldwin, 2007) may distort the perception as to who the resource provider is. Future research may investigate the possibility that different exchange relationships do not operate independently of one another, but rather that they may act simultaneously (Burton et al., 2008; Colquitt et al., 2001).

5.2.3 The importance of differentiating between multiple performance types.

Finally, the overall results of the current thesis reinforce the importance of differentiating between multiple performance measures. One of the key findings from the current investigation is that significant and long-term relationships between the JSM and justice working conditions on OCB. This result is particularly important, given that extra-role performance has rarely been examined in relation to stress-related working conditions, although there are indications that this relationship may be significant (Blakely et al., 2003; Cropanzano et al., 2001a; Moliner et al., 2008). A theoretical implication of the long-term association between the JSM-justice working conditions and OCB is that research examining multiple forms of performance can provide a more comprehensive assessment of the stress-performance relationship. In particular, research taking into account multiple performance measures can help identify whether certain types of performance are more vulnerable to stress-related working conditions. In practice, managers who are interested in actively promoting OCB may gain advantage by concentrating their effort on improving certain working conditions known to affect this type of performance, such as social support (Blakely et al., 2003).

Including multiple performance measures in a longitudinal study framework has also enabled the current study to observe how the unique relationships between
various working conditions and performance measures may change over time. Hierarchical regressions from the cross-sectional study revealed that the working conditions under investigation explained larger amounts of variance in the OCB measures (OCB-O and OCB-I) than they did on task performance. In contrast, the same working conditions were capable of explaining more variance in task performance than in OCB measures in the longitudinal study. These results suggest that, when the outcomes are directly linked to contractual agreement (i.e., task performance), it might take longer for results to become apparent, due to employees being more cautious about altering these outcomes (Organ, 1997; Bergeron, 2007). Findings about the changes in the stressor-performance relationship in relation to time have other important implications. Without having performed a longitudinal study and compared these results with the cross-sectional study involving the same sample, the current project would not have been able to provide insight into how certain working conditions might influence temporal variations in employee outcomes (Sullivan & Bhagat, 1992). Using both cross-sectional and longitudinal research designs have proved to be a valuable feature of the current investigation. Knowing when to target certain working conditions is also valuable for planning intervention strategies. Research has discussed the importance of optimum timing for applying interventions during the management of change (Tucker et al., 2008). Given the current findings that OCB was likely to be affected prior to task performance, change strategies targeting extra-role performance could be introduced before those focusing on in-role performance.

In summary, Section 5.2 provided an overall discussion of results from the current investigation and the implications of these results for research and practice.
The study revealed several important trends involving the relationship between stress-related working conditions and job performance measures. These trends indicate the value of focusing on common working conditions in a high-stress occupational context, the utility of the combined JSM-justice models and components therein in identifying the stressor-performance relationship, the need to consider the additive and curvilinear JSM-justice models, and the importance of differentiating between performance measures. Suggestions for future research, particularly for studies focusing on stress management, stress in the law enforcement context, behavioural outcomes of stress and the dual stress-justice framework, were also provided.

Although the current investigation has provided some useful insights into the stressor-performance relationship, the limitations of this research need to be kept in mind when interpreting the results. The following section will expand on the constraints of the current investigation.

5.3 Limitations of the Current Investigation

The aim of the following section is to discuss the limitations of the current investigation, and, where applicable, suggest means for addressing these limitations in future studies. The limitations that will be outlined are in relation to the policing context, the self-reported survey instrument and the longitudinal research design of the current project.

5.3.1 The study context.

The study context (i.e., within a state-funded law enforcement agency) is an important factor to consider when interpreting the results of the current study. Each sample is distinctive to some extent, and this is particularly the case for samples
from well-defined, homogeneous occupations such as policing, which are typically characterised by strong group cohesiveness (Lysgaard, 1961; Ralston & Chadwick, 2010; Rothwell & Baldwin, 2007). The feeling of responsibility members have for one another in a supportive group may therefore have inflated the relationship between working conditions and employee performance (Pearce & Gregersen, 1991). Further, the complex and demanding nature of police work (as evident in high levels of workload) might further strengthen group cohesiveness to allow members to cope with demands. Finally, the NPM environment may have had a particularly strong influence on the working conditions under investigation (Butterfield et al., 2004; Morland et al., 1997; Rusaw, 2009), and heightened the role of these variables in the stressor-performance relationships found in the current investigation.

The current study context may also have influenced the separation between fairness for employees to express their opinion about the reward distribution process (procedural-voice justice) and fairness of the decision-making process to achieve those distributions that supervisors typically control (procedural-core justice). Although the effects of the two justice dimensions were not significant in the longitudinal study, it is important that consideration be given to the reason that the two justice measures separated in the factor analysis of the organisational justice scale used in the current study (see Section 3.1.5). One of the reasons1 may be that

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1 The separation of procedural-voice from procedural-core justice may also result from item wording (Maharhee-Lawler et al., 2010). The procedural-voice justice items were worded to ask the respondents directly (“Have you…?”), compared to the rest of the items, which ask about the allocation procedures in general (“Have those procedures…?”). Respondents may regard procedural-voice justice items as questions about their own personal experience with fairness of decision-making procedures at work, while procedural-core justice items are not specifically about individuals’ experience, resulting in the division in the original procedural justice subscale. The reason involving item wording has at least an important implication for future organisational justice research. Research can further explore procedural-voice justice with the aim of finding out if the dimension is a result of measurement artifacts of item wording, or could actually be regarded as a distinct type of organisational justice.
the current sample was drawn from a highly unionised public sector that enables employees to raise their concerns and grievances more easily and readily than if they were in non-unionised organisations (Freeman, Boxall, & Haynes, 2007; Freeman & Medoff, 1984; Gospel & Woods, 2003; Haynes, Boxall, & Macky, 2005). The corresponding greater participation in ensuring due process in the workplace may increase the collective regard for employee voice, making it more evident (Lind, Kanfer, & Earley, 1990; Lind & Tyler, 1988).

Another limitation regarding the study context is that the study participants were from a police force in the Australian State of Victoria. Generalisability of the current results may therefore be more appropriate within Australia or policing organisations in western economies such as the US and the UK. The majority of participants in the current investigation were male (n > 80 per cent), aged 40 years or older, had been with the organisation for a number of years (average 10 years or longer) and held a middle rank (Constable/Sargent) at the time of survey. Measures were taken to ensure the representativeness of the sample, including comparison with previous studies undertaken in a similar policing context in the US (Armeli et al., 1998), the UK (Butterfield et al., 2004, 2005), Australia (Davey et al., 2000), the Australian State of Victoria (Hall et al., 2010), and published demographic data for Victoria Police (Victoria Police, 2011). Although these comparisons revealed that the sample demographic profile was similar to that found in Australia and other jurisdictions, caution should be taken if relating the current results to law enforcement organisations outside the specified western economies.

Finally, care was taken in controlling for the effects of the personal characteristics of the current sample in regression analyses. Nevertheless, future
research needs to be reminded of the possible confounding effects of these variables in a policing context. Previous stress research has suggested that demographic variables are likely confounders of the stressor-outcome relationship (Van Vegchel et al., 2005). In the current study context, the working environment was characterised by male employees aged 40 years or older. The majority of workers in the sample had worked in the organisation for over 10 years, and after a decade on the job, it is likely that workers would have developed coping skills for use when encountering stressful situations. For this reason, the current investigation controlled for the age, gender and length of employment of research participants. Age and gender were found to implicate the stressor-OCB relationship in the cross-sectional study, but the long-term effects of personal characteristics were not supported in the longitudinal study. The current results reflect research indicating that the confounding effects of demographics in police stress research are not always consistent (Martinussen et al., 2007). One of the ways to clarify these results is for future studies to continue to test for the influence of these demographic variables, preferably using a longitudinal research design.

5.3.2 Self-report data collection.

The use of self-report questionnaire, while possibly the most common and perhaps necessary approach to collect behavioural data (Gupta & Beehr, 1982; Sims, 1979), may lead to common method variance (CMV) (Campbell & Fiske, 1959; Mitchell, 1985). CMV refers to variance that is attributable to the measurement method rather than to the constructs the measures represent (Fiske, 1982). As such, CMV represents a source of measurement error, and therefore threatens the validity of the relationships identified in empirical research (Podsakoff, MacKenzie, Lee, &
Podsakoff, 2003). In particular, systematic CMV is thought to seriously inflate these relationships and potentially lead to erroneous conclusions (Campbell & Fiske, 1959).

Although CMV can have a substantial confounding influence on empirical findings, several authors have argued that such a problem is often overemphasized (Lindell & Whitney, 2001; Spector, 2006; Sullivan & Bhagat, 1992). In particular, CMV may not be a critical problem when correlations found are modest in size (Podsakoff et al., 2003). Researchers have also reasoned that the reliance on self-reports of job conditions may not be a critical concern, as it is reasonable to assume that it is perceptions of job conditions that influence the psychological states, which in turn affect performance (Cox & Fergusson, 1994; McGrath, 1976; Vroom, 1964). Further, the self-report method is in line with the transactional view that the potential threat or challenge posed by working conditions is dependent largely upon the perceptions and appraisals of the individuals themselves (Cooper et al., 2000; Daniels, 1999; Fox et al., 1993). The transactional view is supported empirically in research that suggests that subjective evaluation of work conditions and social support may be more closely related to psychological outcomes than the actual work conditions (Goldberg et al., 1996).

Although there is debate over the use of self-report data, the current study took necessary measures to minimise the potential problems of CMV. One of these measures was the use of a longitudinal research design, which enabled temporal separation between collecting the data for the independent and dependent variables (Podsakoff et al., 2003). This procedure may reduce the respondent bias about the observed relationships. As a result, the effects of consistency motifs, implicit
theories, social desirability tendencies, dispositional and transient mood states and any tendencies on the part of the participants to concede or respond to questions in a lenient manner can be minimised (Podsakoff et al., 2003). Further, non-significant relationships found in the study suggest that an overall response bias does not account for the observed effects (Bell et al., 2006). Nevertheless, future research may benefit from including more objective measures, particularly on in-role performance, which may be readily available from the human resources department (Podsakoff et al., 2003; Podsakoff & Organ, 1986). It may also be worthwhile for future studies to apply post-hoc statistical tests, such as the CFA marker approach, to detect the impact of CMV (Richardson, Simmering, & Sturman, 2009).

5.3.3 Moderate response rate and sample size.

The response rate achieved in the current investigation was 35 per cent in the cross-sectional study and 23 per cent in the longitudinal study 17 months later. These response rates were not high, but may be considered satisfactory especially considering the use of a self-report organisational survey (Roth & Bevier, 1998), and given that policing is one of the most intensely researched populations in stress research (Bourbonnais et al., 2007; Brown & Campbell, 1990; Shane, 2010). Nonresponse bias was systematically checked, and the results revealed no difference between nonparticipants and participants in regard to demographic variables. Measures applied to establish the representativeness of the sample include comparison with previous studies, particularly longitudinal ones (e.g., Armeli et al., 1998; Brough & Frame, 2004; Hall et al., 2010; Tekleab et al., 2005), and comparison with published demographic data for the Victorian Police force (Victoria Police, 2011). The sample demographics were found to be comparable to
the other police samples, and to the population from which the current sample was drawn.

In regard to the number of matched and valid responses in longitudinal data, the final dataset was not large \((n = 149)\), and there was a risk that a sample of just over 100 may have over-strained the regression model and limited the possibility of identifying interaction effects (Tabachnick & Fidell, 2007). To address this, the current investigation applied a power analysis using the G*Power 3 programme (Faul et al., 2007), with the result revealing sufficient statistical power to detect the hypothesised relationships. Further, missing data was analysed using MVA (SPSS Inc., 2008) to validate the integrity of the decline from \(n = 640\) at Time 1 to \(n = 149\) at Time 2. The MVA result showed no systematic relationships in regard to missingness of any variables under investigation. Finally, respondent biases between cross-sectional and longitudinal samples were evaluated using a series of chi-square goodness-of-fit tests on demographic variables, and the results did not indicate significant difference in the proportion of these demographic variables. Future research may consider these quantitative analyses to assess the attrition rate between Time 1 and Time 2 data. In addition, future studies may consider the use of other techniques with such small samples and with tests for curvilinear models such as the Artificial Neural Network Methodology with Response Surface Methodology (Reby et al., 1997). This method has been used to uncover clearer relationships between employee attitudes and performance (Somers, 2001; Somers & Casal, 2009) and personality and performance (Minbashian, Bright, & Bird, 2010), for instance. The Artificial Neural Network Methodology may therefore present another useful avenue for assessing the response rate in addition to other methods.
5.3.4 The study design.

The current study endeavoured to build on and extend the cross-sectional designs that offer limited opportunities for establishing the stability of results over time and for making causal inferences. Therefore, a two-wave longitudinal panel research design to collect data over a period of 17 months was used. Using a longitudinal design with a longer time lag is desired in job stress research (de Jonge et al., 2001; de Lange et al., 2004; Doest & de Jonge, 2006; Sonnentag & Frese, 2003), and such design may better capture longer-term influences of the job factors that are expected to have enduring effects (Dwyer, 1983; Zapf et al., 1996).

However, there are a number of limitations in regards to the longitudinal design of the current project that need to be recognised. First, despite the value of using multiple waves of data in mapping the dynamics of the stressor-outcome relationship and clarifying temporal relationships between variables (de Lange et al., 2003; Zapf et al., 1996), the current investigation was unable to collect data from more than two time points. Therefore, the assumptions and conclusions of the study are limited to the single time course of 17 months, and the extent to which these influences continue is unknown. More rigorous examination of the temporal relationships between stressors and strains over multiple time points would add much knowledge to this research. Second, more absolute inferences of causal relations are prevented in the current investigation given the non-experimental research design (Judge & Colquitt, 2004; Taris, Kompier, De Lange, Schaufeli, & Schreurs, 2003; Tekleab et al., 2005). The final caution relating to the longitudinal design employed in the current investigation is that the design was not suitable for detecting reverse causation (i.e., Time 1 outcomes influence Time 2 predictors) or assessing reciprocal (bi-directional) relationships in which the predictors and outcomes may mutually
influence each other (de Jonge et al., 2001; de Lange et al., 2004; Doest & de Jonge, 2006; Ibrahim et al., 2009). Future studies could investigate possible relationships beyond a single direction to better understand the impact of the JSM-justice working conditions (Bollen, 1989; Hurrell, Nelson, & Simmons, 1998). In particular, more evidence for reverse causation and reciprocal effects may advance theories on the complex mechanisms underlying stressor-performance relationships (de Lange et al., 2004; Spector, Zapf, Chen, & Frese, 2000; Zapf et al., 1996).

In summary, Section 5.3 discussed a number of limitations of the current project, including the possibility that the NPM-style reforms and the close-knit nature of the law enforcement context influenced the study, the threat of CMV resulting from the self-report data collection method, moderate response rate and sample size, and the inability to collect multi-wave data or investigate reverse causal and reciprocal relationships. Suggestions to overcome or minimise the influence of these limitations in future research were also provided.

The following section summarises the contributions of the current investigation, keeping in mind the aforementioned limitations. These contributions extend and strengthen previous studies in a number of fields, particularly in relation to research involving job stress, organisational justice and employee performance behaviours.

5.4 Contributions of the Current Study

The current thesis has made a number of important contributions to the literature on job stress, stress-related justice and employee performance. Overall, findings from the current study strengthen the long-term link between the psychosocial work environment and job performance, which has often been elusive in previous cross-
sectional research (Jex, 1998; Jex et al., 2006; Schreurs et al., 2012). The 17-month data lag is also a noteworthy feature of the investigation, given that previous research has rarely investigated longitudinal data collected with a time lag of longer than one year (e.g., Cotton et al., 2002; Edwards et al., 2007; Sargent & Terry, 2000).

The second important contribution of the current study is the much-needed evidence of how stressors may influence extra-role performance behaviour. By linking job demands and key job resources to multiple performance types, it was possible to clarify how specific working conditions may be associated with task and non-task performance. Much of the stressor-performance literature has overlooked non-task performance behaviour (Bakker et al., 2004; Jex et al., 2006)(Sliter et al., 2012). The current findings that task-based and non-task performance had unique predictors have provided fresh evidence supporting the proposal that employee performance should be differentiated in stress research.

The third contribution is that the current study has extended the utility of the justice-stress framework, which has been used almost exclusively to study health and attitudinal outcomes (e.g., Head et al., 2007; Kouvonén et al., 2008; Lambert et al., 2007). To the author’s knowledge, the current project is the first to use the JSM-justice framework to explore multiple employee performance behaviours. The dual framework represented a more comprehensive and context-relevant conceptual framework that enabled the current investigation to uncover differential relationships between key working conditions and performance measures. Some of these relationships, particularly those based on social interactions, have been shown to play critical roles in how people appraise and respond to potentially stressful
situations. At a general level, the current research reinforces the importance placed on supportive workplace environments in much of the previous research (Chiaburu & Harrison, 2008; LaRocco et al., 1980; Schaufeli et al., 2009). More importantly, the current findings on social-related working conditions offer initial evidence of the role of relationship-based justice measures in the associations between the work-based sources of job stress and productive employee behaviours.

The fourth and fifth contributions of the current project involve findings that are in contrast to some popular views in stressor-performance research. One of these views is that stress is fundamentally deleterious (Cynkar, 2007). Current findings from the cross-sectional and longitudinal analyses revealed that workload demands are not necessarily negative, but may provide opportunities to achieve more at work, as the challenge-hindrance hypothesis suggests (Cavanaugh et al., 2000). Another popular view is that stressors and performance are linked in a linear way (Gilboa et al., 2008; Rydstedt et al., 2006). The current investigation tested for interaction and curvilinear effects in addition to direct effects, and the results revealed that the stressor-performance relationship in the long term could be characterised by both direct linear and curvilinear associations. A positive outcome of these unexpected results is that the results may encourage future studies to allow for more non-traditional hypotheses in relation to the shape and direction of the stressor-performance relationship. Future research can add further to this important area of research and improve our understanding of work stress overall.

Finally, the current study has made an important contribution to the law enforcement stress literature and law enforcement occupational groups by investigating the influence of common working conditions as identified by the JSM-
justice framework. A wealth of information in police stress literature has been drawn from studies focusing on acute stressors (e.g., Brown & Campbell, 1990; Reinecke et al., 2007), and evidence of the impact of chronic stressors on wellbeing of law enforcement personnel has been steadily accumulating over the past few decades (e.g., Berg et al., 2005; Hart, Wearing, & Headey, 1995; Shane, 2010). Previous research has shown that heavy workloads, inadequate social support, limited decision-making control and unfair treatments experienced by contemporary policing personnel have become more prevalent, partly due to the influence of modern public-sector management techniques (Butterfield et al., 2004; Deschamps et al., 2003; Rusaw, 2009). The findings involving the JSM-justice framework are therefore very relevant to present-day state-funded law enforcement agencies. Furthermore, the current study found that JSM-justice working conditions are closely associated with in-role and extra-role performance in both direct linear and curvilinear ways, thereby offering insight into how psychosocial working conditions could be addressed to improve the overall performance of police personnel. These results were directly relevant to Victoria Police, which permitted the research team considerable access to its employees. To make a contribution to Victoria Police, results of this research were presented to the organisational representatives. A summary of these results was then circulated to all members of the organisation via a staff newsletter. The link between state-funded law enforcement and other publicly funded human services, such as social work, health care and education, also means that these results could have relevance to the broader human service sector.
5.5 Concluding Remarks

The current investigation was designed to explore the relationship between key stress-related working conditions and employee performance behaviours. The vast majority of job stress research has focused on health and attitudinal outcomes, and the connection between key stressors and performance remains one of the least studied, and perhaps most ambiguous relationships in the work stress literature (e.g., Beehr & Glazer, 2005; Beehr et al., 2000; Cooper et al., 2000; Jex et al., 2006; Schreurs et al., 2012). More specifically, previous research had not been able to clarify the strength, direction and stability of the stressor-performance relationship. Some of the key limitations in the existing literature include a lack of studies differentiating between performance measures, a tendency to focus on linear relationships between study variables and to overlook curvilinear or moderated effects, and the scarcity of research employing longitudinal designs. The overall aim of the current investigation was to address these limitations. To achieve this aim, the current study focused on four working conditions that are among the best predictors of stress-related outcomes (Berg et al., 2005; Brough & Frame, 2004). These conditions are job demands, job control and social support (as described in the JSM; Karasek & Theorell, 1990) and organisational justice (as identified by multidimensional justice theory; Colquitt, 2001). Two measures of effective work behaviour, in-role performance behaviour and OCB, were employed to clarify the differential effects associated with the psychosocial working conditions under investigation. A comprehensive assessment of the working condition-performance relationship was undertaken, including tests for the direct linear, curvilinear and interactive associations. The study sample consisted of Australian-based police officers and the data was collected via a mail-out survey.
Two studies were undertaken in the current investigation. Study 1 was cross-sectional, and aimed to assess the capacity of the JSM-justice model to account for variance in the relationship between the working conditions and employee performance measures. Study 2 examined if and how these relationships remain stable over time. The two studies uncovered a number of significant findings that provided some useful insights into the stressor-performance relationship. Overall, the findings from Study 1 revealed a differential and moderate association between the JSM-justice working conditions and in-role and extra-role performance. The JSM variables collectively accounted for larger portions of variance in both performance measures when compared to the justice variables. In terms of the nature of the relationships, a number of pathways, including direct linear, curvilinear and interaction-based relationships were found, although the dominant models were the direct linear ones. A notable finding from Study 1 that did not reflect the majority of demands-performance research was the positive association involving workload demands.

Study 2 was based on a longitudinal research design with a 17-month time lag. The number of relationships identified in this study was considerably less that those found in Study 1, and the strength of these relationships was generally weak to moderate. Despite these weaker results, the findings from Study 2 supported the findings from Study 1 that the JSM-justice model had the capacity to explain significant variance in job performance measures, that workload demands were associated positively with performance, and that justice components, particularly relationship-based justice, were associated non-linearly with performance. Findings from Study 2 also revealed that some relationships were temporal or episodic.
Specifically, direct linear relationships involving job control, social support and interpersonal justice, and interactions involving job demands, job control and social support were only shown in Study 1, and the inverse U-shaped relationships between work-based support and OCB were only found in Study 2.

Overall, the results of the current investigation reinforced and extended stressor-performance research in three key areas. The current study confirmed the importance of focusing on the longer-term impact of salient psychosocial working conditions, such as those identified by the JSM-justice framework, on multiple employee performance fluctuations. The unexpected results involving the positive influence of workload demands suggested that future research should consider the less-researched demands-performance hypothesis, which takes into account the positive impact of demands. Finally, the significant results involving nonlinear relationships highlighted the value of examining the stressor-performance relationship in a more comprehensive manner.

Findings from the current investigation have two major implications for practice. First, the research undertaken as part of this thesis has helped identify working conditions that need to be considered when developing strategies designed to improve job performance behaviours. More specifically, the results involving the positive effects of workload, when considered in conjunction with previous research on challenge-hindrance stressors, suggest that practitioners may benefit from focusing on efforts to improve motivation mechanisms through workload, rather than on pursuing the less likely option of reducing workload. The other important implication for practice is that, with better understanding of the comprehensive manner with which stress-related working conditions and performance behaviours
are associated, organisations may be encouraged to voluntarily adopt stress management strategies that are tailored to the specific circumstances in which working conditions undermine or enhance employee performance. The results involving curvilinearity in particular indicated that organisations may need to adopt more individualistic stress management strategies (Adams & White, 2005). This would entail identifying the levels of stress capable of optimising desirable outcomes. The implications for practice from the current study may be particularly useful to contemporary state-funded law enforcement agencies, as these organisations are more vulnerable to heightened job demands, diminished job control and inadequate support as a result of modern public-sector management techniques, such as the NPM (Buker & Wieko, 2007; Butterfield et al., 2005; Coyle-Shapiro & Kessler, 2000). Similarly, the implications of the current results could have relevance to the broader human-service sector, given the link between law enforcement and other publicly funded human services, such as social work, health care and education.

The current study is not without limitations. The limitations that should be considered when interpreting the current results include the possible influence of the law enforcement context itself, the inherent problems of using self-report data collection, the moderate response rate and sample size, and the study design, which was unable to investigate reverse or reciprocal relationships. The author of this thesis encourages future studies to take the limitations of the current study into account, and to ensure that subsequent stressor-performance research can continue in a progressive and strategic manner.
Despite several limitations, the current investigation has made a number of substantial contributions to the stressor-performance literature and practice. Findings from this research strengthen the long-term association between key working conditions and employee performance. In particular, the findings provide the much-needed information about the relationship between stressors and extra-role performance behaviour. The current findings also extend the utility of the stress-justice framework in investigating multiple performance measures. Finally, the current results challenge the popular view that stressors are fundamentally deleterious and that stressors have linear association with performance.
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Appendices

Appendix 1: Letter inviting Victoria Police personnel to participate in the study

Dear (employee)

I would like to invite you to take part in a survey that is part of a research project aimed at identifying the work-based characteristics that make significant contributions to the levels of stress and performance experienced by public sector employees. The results of this study will be used to help develop strategies that can prevent or reduce the stress experienced by members of this sector.

In the questionnaire you will be asked to identify the situations, events and conditions that cause you stress. More specifically, you will be asked questions in relation to your job satisfaction, job commitment, work performance, wellbeing, and intention to remain with your organisation. In addition, you will be asked about your daily job demands, the control you have over the decision you make at work, support you receive from work and home, your job involvement, job characteristics, the degree to which you identify with your organisation, and your perceptions of fairness of pay and promotion procedures. The questionnaire will take approximately 30 minutes to complete. Participation in this survey is strictly voluntary and non-participation will have no effect on your ongoing employment.

Strict guidelines will be followed to ensure that the information you provide in this questionnaire is kept confidential. At the end of the survey, you are asked to provide your employee number. Providing your number is completely voluntary. If
you do provide your employee number, if will form a code, which will help us to identify changes in employee perception over time. Only members of the Deakin University research team will see your survey responses, including your employee number. However, the researchers will not have access to employee names, and hence they will not be able to link your number with your name. Any feedback to your organisation will be reported in summary form only, and individuals will not be identifiable in this information.

Once you have completed the questionnaire, please return it to Deakin University in the stamped, self-addressed envelope provided. Upon the completion of the study a summary of the findings will be made available to all study participants. All reports resulting from this study will be in a summarised, statistical format only. No individual employees will be identifiable in these reports. Furthermore, all recorded information obtained through our enquiries will be kept in a locked office here at Deakin University for six years. Should you wish to withdraw from the study, we will not use any of the information you have provided.

There are questions in the survey that are designed to obtain general information about your background (e.g., age and working experience). However, respondents are only expected to indicate the numerical range that applies to them (e.g., 30-40 years of age) and, hence, the likelihood of individual employees being identified from a completed questionnaire is minimal.

I recognise that merely answering questions about the causes of stress can often create some distress and discomfort. Generally, however, the nature of the questions will not create stress levels that go beyond that which you would encounter in your everyday life. Still, if you do become upset as a result of
completing this survey, please contact myself and I will provide the contact details of Victoria Police’s EAP provider whom you can contact directly for confidential counselling service.

If you have any queries about the questionnaire or the project feel free to contact me (telephone number provided). Thanks and I look forward to receiving your completed questionnaire.

Yours sincerely

(Signature of researcher)
Appendix 2: Measures of job characteristics and performance used in the study

Job demands

The 11-item quantitative workload scale developed by Caplan, Cobb, French, Harrison, and Pinneau (1980) was used. Responses were recorded on a five-point scale ranging from ‘rarely’ (5) to ‘very often’ (1), with higher scores indicating higher workload demands. The items in the scale are:

1. How often does your job require you to work very fast?
2. How often does your job require you to work very hard?
3. How often does your job leave you with little time to get things done?
4. How often is there a great deal to be done?
5. How much workload do you have?
6. How many lulls between heavy work load periods do you have?
7. How much time do you have to think and contemplate?
8. What quantity of work do others expect you to do?
9. How much time do you have to do all your work?
10. How many tasks or responsibilities do you have?
11. How much slowdown in the workload do you experience?

Job control

Job control was measured using a nine-item scale developed by Karasek (1985). Responses were recorded on a five-point scale ranging from ‘strongly
disagree’ (1) to ‘strongly agree’ (5), where higher scores indicated greater job
control. The items in the scale are:

1. My job requires that learn new things
2. My job involves a lot of repetitive work
3. My job requires me to be creative
4. My job requires me to make a lot of decisions on my own
5. My job requires a high level of skill
6. On my job I have very little freedom to decide how I work
7. I get to do a variety of things in my job
8. I have a lot of say about what happens on my job
9. I have the opportunity to develop my own special abilities.

**Social support**

A social support scale incorporating multiple forms and sources of support
(Etzion, 1984) was used. Responses were recorded on a seven-point scale ranging
from ‘very little’ (1) to ‘very much’ (7), with higher scores indicating higher
support. The items in the scale are:

1. To what extent do you get appreciation and recognition for what you do?
2. To what extent are you able to share the burden with others in terms of
   your duties and responsibilities?
3. To what extent do you receive feedback on your performance?
4. To what extent are you able to take time off when you are under pressure?
5. To what extent is support and advice available to you when you are experiencing difficulties?

6. To what extent is the quality of your relationships with others satisfactory?

7. To what extent do you feel emotional support from others?

8. To what degree are you satisfied with your relationships with the following people at work (supervisors, co-workers, subordinates)

9. To what degree are you satisfied with your relationships with the following people and groups? (partner, family, friends).

**Organisational justice**

The organisational justice measure developed by Colquitt (2001) was chosen. Responses were recorded on a five-point scale ranging from ‘very often’ (1) to ‘rarely’ (5) with a high score reflecting a high level of perceived fairness in the organisation.

Questions relating to the procedures used to decide whether the employee received pay increases and/or promotions are:

1. Have you been able to express your views and feelings during these procedures?

2. Have you had influence over the results arrived at by those procedures?

3. Have those procedures been applied consistently?

4. Have those procedures been free of bias?

5. Have those procedures been based on accurate information?

6. Have you been able to appeal the results arrived at by those procedures?

7. Have those procedures upheld ethical and moral standards?
8. Do your pay, promotions, and other benefits reflect the effort you put into your work?

9. Are your benefits (e.g., pay and promotions) appropriate for the work you have completed?

10. Do your benefits reflect what you have contributed to the organisation?

11. Are your benefits justified, given your performance?

Questions relating to people who made the decisions regarding the employee’s pay increases and/or promotions are:

To what extent:

12. Have they treated you in a polite manner?

13. Have they treated you with dignity?

14. Have they treated you with respect?

15. Have they refrained from improper remarks or comments?

16. Have they been candid in their communications with you?

17. Have they explained the procedures thoroughly?

18. Were their explanations regarding the procedures reasonable?

19. Have they communicated details in a timely manner?

20. Have they seemed to tailor their communications to individuals’ specific needs?

**Job performance**

Job performance was measured using the 21-item job performance scale developed by Williams and Anderson (1991). Responses were recorded on a seven-point scale ranging from ‘strongly disagree’ (1) to ‘strongly agree’ (7), with higher
scores indicating higher levels of task performance, OCB-I and OCB-O. The items in the scale are

1. I help others who have been absent
2. I help others who have heavy workload
3. I assist my supervisor with his/her work (when not asked)
4. I take time to listen to co-workers’ problems and worries
5. I go out of my way to help new employees
6. I take a personal interest in other employees
7. I pass along information to co-workers
8. My attendance at work above the norm
9. I give advance notice when unable to come to work
10. I take underserved work breaks
11. A great deal of my time is spent on personal phone/email/other communications
12. I complain about insignificant things at work
13. I conserve and protect organisational property
14. I adhere to informal rules devised to maintain order
15. I adequately complete my assigned duties
16. I fulfil the responsibilities specified in my job description
17. I perform the tasks expected of me
18. I meet the formal performance requirements of the job
19. I engage in activities that will directly affect my performance evaluation
20. I neglect aspects of my job that I am obliged to perform
21. I fail to perform essential duties.