Chapter 8
Psychosocial Safety Climate as a Factor in Organisational Resilience: Implications for Worker Psychological Health, Resilience, and Engagement

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Abstract Organisations are undergoing unprecedented changes in order to survive in a global and fiercely competitive capitalist market. Resilience is the capacity to endure challenges and is an attribute highly sought after in organisations, but is a construct typically theorised at the individual level. We argue that the notion of resilience can be applied at a systems level to the organisational context, and that organisational resilience presages individual resilience. Organisational resilience is defined as the capacity of the organization to cope with challenges through flexible, adaptable, humane, and interactive systems, whilst maintaining the health, individual resilience, and engagement of employees. Using the framework of Job Demands-Resources theory, organisational resilience was theorized as an upstream systems level resource that influences the work context (i.e., job demands, job resources) and, in turn, worker psychological health symptoms (i.e. psychological distress and emotional exhaustion), individual resilience, and work engagement. In a sample of 371 humanitarian service workers, organisational resilience (adaptive management, Psychosocial Safety Climate (PSC), interdepartmental coordination) was negatively related to job demands and positively related to resources, which in turn carried the indirect negative effect of organizational resilience to psychological health symptoms. Organizational resilience was indirectly positively related to individual resilience and engagement via job resources. Individual resilience was distinct from, but related to both psychological health and engagement. Results suggest that tackling resilience as an organisational/system level phenomenon may have wide

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ranging effects, improving job conditions, reducing psychological health symptoms, and maximising individual resilience and engagement. Focusing on individual resilience may be an ineffective response.

Keywords Organisational resilience · Psychosocial Safety Climate · Employee engagement · JD-R theory · Individual resilience · Psychological health

8.1 Introduction

Survival in business in a capitalist context requires more than just the development of a unique product and good people. Organisations are required to react swiftly and adapt to continuous fluctuations in the economy and the pressures of a competitive global market (Van den Heuvel, Demerouti, & Bakker, 2014). A consequence of rapid change is that it can surpass those within the system, leading to problems of adaptation such as stress, impaired work engagement, and reduced performance, and ultimately personnel turnover (Noblet, Rodwell, & McWilliams, 2006). Building organisational resilience has been posed as a solution, to withstand both external demands and internal organisational challenges. It is regarded as not just central to survival, but important for maintaining a competitive advantage. We define organisational resilience as the capacity of the organization to cope with challenges through flexible, adaptable, humane, and interactive systems, whilst maintaining the health, individual resilience, and engagement of employees.

Organisational survival for non-government organisations also faces similar challenges. Work in humanitarian aid agencies has been described by workers as a constant crisis where the organisation must negotiate the demands and complexity of external expectations with 'the disease burden' of employees (Jachens, Houdmont, & Thomas, 2018). In this chapter we chose a humanitarian aid organization as the context within which to explore the construct of organisational resilience and related propositions.

The theoretical progress relating to organisational resilience and improved work/worker outcomes is limited, and little is known about the essential ingredients of organisational resilience. The central argument of this chapter is that organisational resilience precedes work conditions, that in turn affect worker psychological health, and engagement. This chapter extends the job-demands resources (JD-R) model (Bakker & Demerouti, 2017; Demerouti, Bakker, Nachreiner, & Schaufeli, 2001) and investigates the impact of organisational resilience on the model's underlying processes. Evidence for these processes offer organisations greater insight into the positive benefits of building organisational resilience, and a systems framework for building capacity at the worker psychological level (i.e. individual resilience).

This chapter adds to the literature in several respects. First, it identifies constituent elements of organisational resilience, and builds organisational resilience theory by extending the JD-R framework. Second, it examines worker psychological health, individual resilience and engagement as outcomes of organisational or system

resilience. Our measure of organisational resilience (PSC, adaptable systems, and interdepartmental coordination) illustrates potential sources of protection in periods of turbulence, but can also present vulnerabilities at the systems level. This study intends to forge new ground, exploring a pathway from organisational characteristics to psychological outcomes via job demands and resources.

In what follows, we explain what is meant by organisational resilience, and explicate the processes via which it is related to worker psychological health symptoms, resilience, and engagement. We discuss the reasons for choosing these specific outcomes, and then provide a theoretical model that links organisational resilience to outcomes (including individual resilience) via working conditions, namely job demands and job resources.

8.1.1 Theoretical Foundation for Organisational Resilience

The concept of organisational resilience is very much in its infancy when compared to the literature on personal resilience. Resilience and the capacity to endure work challenges has been typically examined at an individual level in a developmental or clinical context. Over the last several decades organisational resilience has been studied as a multidimensional concept, using various inventories or audits that build on the concept of personal resilience (Hind, 1996; Horne & Orr, 1997; Mallak, 1998a, b). Little theoretical work has advanced to explain organisational resilience and it has been typically portrayed as an outcome measure (Riolli & Savicki, 2003). To identify the constituent components of organisational resilience, we draw on a number of work stress models.

Organisational resilience is defined in this chapter as an organisation's ability to efficiently and effectively adapt to challenge and change, and to meet its core functional objectives whilst maintaining the psychological health, resilience, and engagement of employees. We concur with others that resilience models need to be systemic and consider the individual in the context of their working organisation (Hind, 1996; Mallack, 1998a, b). Organisational resilience is therefore conceived as an organisational level resource. It relates to the organisation's ability to adapt and grow in the face of unexpected demands. But the organisation will only be resilient if the sum of its parts, largely the workforce, can also adapt and grow.

The industrial goal of organisational resilience has been recently identified in the safety management literature. Here organisational resilience has been defined as "the characteristic of managing the organisation's activities to anticipate and circumvent threats to its existence and primary goals. This is shown in particular in an ability to manage severe pressures and conflicts between safety and the primary production or performance goals of the organisation" (Hale & Heijer, 2006, p. 31). Such systems that reflect a balance of production and worker health priorities, i.e., healthy conducive production models (Dollard & Karasek, 2010), should result in increased capacity of the system to 'weather the storm', evolve, and grow while keeping workers healthy and engaged.

An element of safety systems that has been overlooked in the literature is psychosocial safety, which relates to the psychological health and well-being of workers, and ensuring that workers are free from psychological and social harm. Our focus in this study is on psychological rather than physical health. The first constituent component of organisational resilience that we examine in this chapter is psychosocial safety climate (PSC). PSC refers to policies, practices, and procedures for the protection of worker psychological health and safety. More specifically, PSC relates to employee perceptions regarding an organisation's values and practices towards the balance of priority for production goals versus the psychological health of workers (Dollard & Bakker, 2010).

The second constituent component is adaptability. The notion of adaptability is discussed in several models of stress. For example, McEwen (1998) described the body's stress response to acute stressors as an adaptive mechanism, with the goal of maintenance of system as allostasis or homeostasis. However, frequent activation, such as in the case of chronic ongoing demands, can lead to allostatic load, and the physiological costs of exposure to a chronic stress response, and to a range of psychological health related symptoms (McEwen, 2003). The goal of organisational resilience is to face a challenge then return to allostasis. The present study examines the adaptive capacity of a system to flex and evolve with change such that the business can continuously improve, even in the face of large disturbances (Dalziell & McManus, 2004). Organisations may adapt by establishing and optimizing cooperative routines when exposed to external threat (e.g., when new competitors show up), or by experimentation with re-organized organizational structures in times of low threat in order to increase flexibility.

The third component relates to coordination. Formulations such as the "associationist" demand-control model (Karasek, 2008) postulate that the impact of burden at work results from the lack of control an individual has over the complex physiological coordination required in response to increasing demands. As a result of long-term exposure to stressors in the current global economy, physiological coordination has been pushed to extremes, and finally leads to chronic disease. In particular the stress-disequilibrium component of the "associationist" demand-control perspective describes how higher levels of organisational order allows the organism to effectively deal with environmental demands—without health damaging consequences at lower levels. Applied at an organisational level, higher level coordination and order is required within organisations to reduce threats to individual workers' stable self-regulation and possible interference with coordination of tasks, emotional health, personal development, job stability, and work/family life (Dollard & Karasek, 2010). Coordination and cooperative systems are therefore a characteristic of organisational resilience. Knowledge and information sharing within a system, an example of coordination and cooperation, is recognised as an important facet in fostering organisational resilience (Hind, 1996; Horne & Orr, 1997; Stewart & O'Donnell, 2007).

In sum, organisational resilience reflects the capacity of a system to balance productivity demands and health requirements of workers. In a resilient organisation, employees, work groups and so on, can maintain their health in the face of strong

external demands, such as competitive global markets, or demanding parents in a school context. Organisational resilience differs from concepts such as organisational readiness or resistance which refer to members shared resolve whereas organizational resilience concerns the capacity of organizational systems to react. Organisational resilience has clear organisational benefits, including sustainable production, improved health and engagement of workers, and reduced costs related to personnel turnover. Organisational resilience in this chapter is conceived in terms of the constituent components, psychosocial safety, adaptability, and coordination systems. It is important to emphasise that these are not considered an exclusive taxonomy of organisational resilience constituents. Rather, they are simply intended to reflect important components suggested through theoretical considerations that may relate to worker conditions and, in turn, health and engagement outcomes. Just how the elements of the system translate to these outcomes will be elucidated next.

8.1.2 Organisational Resilience and the JD-R Model

One of the most widely applied theoretical models used to explain the relationship between job/content level factors and psychological health and motivation is the Job Demands-Resources (JD-R) model (Bakker & Demerouti, 2017; Demerouti et al., 2001). Central to the JD-R model is the notion that employee well-being can be affected by characteristics of the work environment, namely, job demands and job resources. Previous studies have found support for the propositions of the model (e.g., Bakker, Demerouti, & Verbeke, 2004; Schaufeli & Bakker, 2004; Schaufeli, Bakker, & van Rhenen, 2009) where demands and resources have mainly been operationalised at the job task level.

Theoretically, the JD-R model proposes two psychological processes: (1) the health impairment process, and (2) the motivational process. According to the first, sustained effort to cope with high job demands may exhaust a worker's energy reserve leading to health degradation (Demerouti et al., 2001; Schaufeli & Bakker, 2004; Xanthopoulou, Bakker, Demerouti, & Schaufeli, 2007). The second is a motivational process whereby sufficient job resources lead to motivation outcomes (Schaufeli et al., 2009). In this study, we operationalise job demands in terms of work pressure and emotional demands, and job resources in terms of job control, i.e., decision authority and skill discretion. The convergent and divergent validity of these conceptualisations have been supported conceptually (Dollard & Bakker, 2010), and theoretically (Karasek, Baker, Marxer, Ahlbom, & Theorell, 1981). Next, we explicate how organisational resilience relates to demands and resources.

The first organisational resilience ingredient is adaptable management systems. Organisational resilience may imply increased job autonomy as a *resource* because loosely coupled systems (=flexible systems) require buffers such as autonomy to keep them going. Flexible systems also require a variety of other types of organizational slack (resources such as budget, personnel, space, and time). For instance, space and time are lacking in just-in-time production systems, and whenever there is an external

threat (e.g., a trivial thing such as traffic congestion or more dramatic things such as strikes), the system breaks down because it is too inflexible. We expect that flexibility would have a negative effect on chronic demands, as systems that are nimble are able to offset emerging demands that could arise for example in an emergency situation.

The second organisational resilience ingredient is PSC. Theoretically, PSC is argued to be related to both psychological health and motivation outcomes such as engagement via working conditions. Organisations with high PSC have managers cognizant of the negative impact of psychosocial risks at work, such as high demands, and low resources; managers in high PSC contexts actively seek to reduce demands, or in the case that they can not be prevented, seeks to offset them by providing adequate resources. Recent longitudinal research has shown that Psychosocial Safety Climate was related to both job demands (negatively) and resources (positively), and indirectly influenced psychological health and engagement, respectively (Dollard & Bakker, 2010). PSC has also been shown to be related to organizational registered sickness absence (Dollard & Bakker, 2010). Senior managers play a major role in setting the tone of an organization, establishing priorities and allocating resources (Flin, Mearns, O'Connor, & Bryden, 2000). A management style supportive of worker psychological health gives workers control over timing or and methods, and the freedom to develop new skills (Brown & Leigh, 1996). Therefore, we expect that individuals in more positive PSC contexts will have access to increased resources such as job control.

The third ingredient is interdepartmental coordination, collaboration and cooperation. This is more than just knowledge sharing, but the underlying connectedness of the organisation to retain clarity of purpose and respond as a whole-system (Detert, Schroeder, & Mauriel, 2000; Hind 1996; Horne & Orr, 1997). For example, organisational resilience coordination could relate positively to *job resources* because coordination implies a degree of integration, a reduction in degrees of freedom and entropy, so called "platforms of stability" (Dollard & Karasek, 2010) whereby more control or social support will become available. When interdepartmental coordination is high, knowledge and information sharing could reduce risks associated with unexpected work peaks or emotional demands. When interdepartmental coordination is low, without coordinated information about risks, we expect that workers are exposed to high workloads and emotional demands.

Together, we conceptualise these three organisational resources as elements of a holistic organisational resilience construct that precedes job-content level factors, and in turn influences psychological health and engagement outcomes. We use two important psychological health symptoms in this study, namely psychological distress and emotional exhaustion. Previous research has shown that distress and exhaustion may cause physical health problems (Ahola, Väänänen, Koskinen, Kouvonen, & Shirom (2010), and undermine job performance (Taris, 2006). Work engagement is defined as a positive, fulfilling, work-related state of mind characterised by vigor, dedication, and absorption (Schaufeli & Bakker, 2004).

An additional outcome considered here, and a novel outcome in the JD-R framework is individual resilience. Individual resilience is defined as "the capacity to rebound or bounce back from adversity, conflict, failure or even positive events,

progress, and increased responsibility" (Luthans, 2002, p. 702). We conceive that individual resilience is related to but separate from psychological health and engagement. Worker or individual resilience shares aspects of psychological health, and also the motivation aspect of engagement (Youssef & Luthans, 2007). The specific pathways of the JD-R model will now be discussed culminating in hypotheses linking organisational resilience to the health and motivation pathways and psychological health symptoms, individual resilience and engagement.

8.1.3 The Health Impairment Pathway

The first psychological process pathway of the JD-R model postulates a relationship between job demands and health erosion. There is considerable evidence in the literature in support of this relationship (Bakker, Demerouti, & Schaufeli, 2003b; Bond & Bunce, 2001; Lewig, Xanthopoulou, Bakker, Dollard, & Metzer, 2007; Bakker, Demerouti, Taris, Schaufeli, & Schreurs, 2003c; Schaufeli & Bakker, 2004). Job demands refer to "those physical, psychological, social or organizational aspects of the job that require sustained psychological or physical effort or skills and are therefore associated with physiological or psychological costs" (Bakker et al., 2003c, p. 344). Whilst there is strong support for the health impairment pathway with job demands operationalised at the job level, evidence for the impact of organisational level factors on health is not as comprehensive (Dollard & Bakker, 2010; Fletcher, Major, & Davis, 2008). Fletcher et al. (2008) reported that a competitive psychological climate led to greater stress. Similarly, Piirainen, Rasaneen and Kivimaki (2003) found organisational climate characterized by tension and prejudice increased the odds of work related psychological symptoms compared to an organizational climate that was relaxed and supportive of new ideas. Moreover, Dollard and Bakker (2010) found that organisational level PSC predicted favourable change in individual psychological health symptoms (psychological distress, emotional exhaustion) via its negative effect on task level job demands (work pressure and emotional demands). In previous sections, we outlined why the organizational resilience components were related to job demands and resources. Here we have explained how demands are related to psychological health because of health erosion. Bringing these arguments together, we formulate our first hypothesis (note all hypotheses are represented in Fig. 8.1).

Hypothesis 1 Organisational resilience negatively relates to worker psychological health symptoms. We expect that job demands play a mediating role in the relationship between organisational resilience and worker psychological health symptoms.

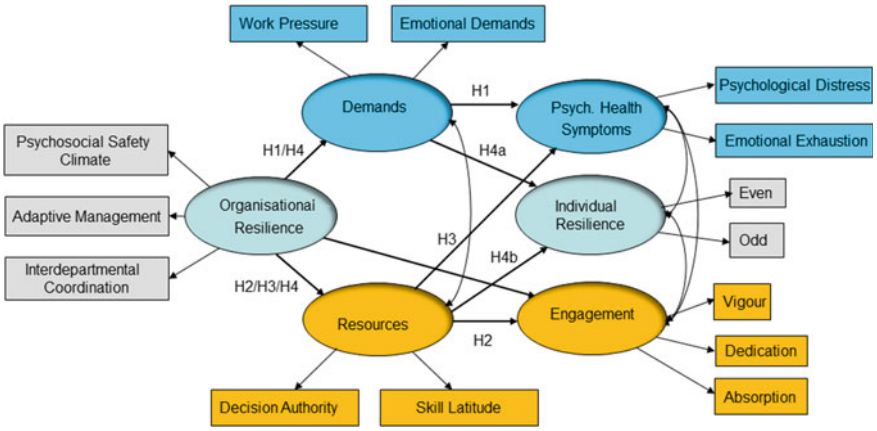

Fig. 8.1 Study model

8.1.4 The Motivational Process

The second JD-R model pathway is the motivational process pathway, linking job resources to work motivation outcomes. Resources refer to "those physical, psychological, social or organizational aspects of the job that: (a) are functional in achieving work goals; (b) reduce job demands and the associated physiological and psychological costs; or (c) stimulate personal growth, learning and development" (Bakker, Demerouti, de Boer, & Schaufeli, 2003, p. 344). Job resources may play an intrinsic motivational role, fostering employee's growth and development, or an extrinsic motivational role as they help in achieving work goals (Bakker & Demerouti, 2017). In terms of motivational theories, availability of appropriate resource increases an individual's expectancy to achieve work goals. Moreover, resources increase an individual's desire to reach a given goal and persistence in approaching it. Both processes explain how resources increase engagement and there is substantial empirical support for this linkage (Hakanen, Bakker & Schaufeli, 2006; Hakanen, Perhoniemi, Toppinen-Tanner, 2008; Mauno, Kinnunen & Ruokolainen, 2007; Schaufeli & Bakker, 2004; Schaufeli et al., 2009). Specifically, the positive relationship between the resource job control and work engagement has been shown many times (for a meta-analysis, see Halbesleben, 2010; Hakanen et al., 2006; Koyuncu et al., 2006), and job control is one of the best lagged predictors of work engagement (Mauno et al., 2007).

There is some evidence in the literature of higher-level constructs that share some similarities with organisational resilience and relate to work outcomes. For instance, a supportive organisational climate has been found to relate to outcomes such as organisational commitment, job satisfaction (Mercer & Bilson, 1985) and firm performance as measured by goal attainment and longitudinal change in return on assets (Baer & Frese, 2003). More recently, Luthans , Norman, Avolio & Avey, (2008) found

a positive relationship between a supportive organisational climate and outcomes such as job satisfaction and commitment. Although these studies show preliminary evidence of the impact of higher-order constructs, missing in these studies is how organisational level constructs are experienced at the job task level, and then influence outcomes at an individual level. Dollard and Bakker (2010) filled this gap by demonstrating that organisational PSC predicted change in task level skill discretion which, in turn, led to changes in employee engagement. Building upon this mechanism and the theoretical motivational pathway in the JD-R framework, we anticipate:

Hypothesis 2 Organisational resilience positively relates to work engagement. We expect that job resources play a mediating role in the relationship between organisational resilience and work engagement.

Whilst the main predictor of psychological health status is job demands, a lack of job resources may also have effects (Schaufeli & Bakker, 2004). For example, a lack of control may lead to psychological health symptoms, owing to a lack of opportunities to cope with stressful situations (Karasek & Theorell, 1990; Schaufeli & Bakker, 2004). A cross-links health erosion path between the health and motivation pathway, specifically between resources and psychological health is well supported empirically (Hakanen, Bakker, & Schaufeli, 2006). Thus:

Hypothesis 3 Organisational resilience negatively relates to psychological health symptoms. We expect that job resources play a mediating role in the relationship between organisational resilience and psychological health symptoms.

As mentioned, individual resilience is a psychological outcome that could be affected by both the health erosion and motivation paths. As mentioned organizational resilience is likely to result in less individual exposure to demands, and in turn, demands in the context of a resilient system should lead to less taxing of personal resources and improved individual resilience to cope with future demands. In terms of the motivation path, organizational resilience is likely to generate resources that in turn should bolster individual resilience (for example providing more autonomy to employees results in stronger beliefs of internal control). There is no research linking job control or job demands to individual resilience specifically. Conservation of resources (COR) theory (Hobfoll 1989; 2001) is helpful in explaining how job control and job demands link to individual resilience. According to COR theory, individuals are inclined to seek and acquire valued resources and protect them. When resources are threatened or lost stress occurs (Hobfoll, 1989, 2001; Hobfoll, Halbesleben, Neveu, & Westman, 2018). Job demands likely tax personal resources leading to a depletion of individual resilience, reducing the capacity for flexible adaptive behaviour. Alternatively job control would empower employees to build up resources, take flexible action, internalise control, overcome obstacles, and take risks; in other words job control is a strong enabler of resilient behaviour.

Hypothesis 4 Organisational resilience positively relates to individual resilience. We expect that job demands (H4a) and job resources (H4b) play a mediating role in

the relationship between organisational resilience and individual resilience. Organisational resilience negatively relates to job demands, and in turn job demands negatively relates to individual resilience (H4a). Organisational resilience positively relates to resources; resources positively relate to individual resilience (H4b).

8.2 Method

A steering committee for the research was established, comprising a representative from each functional group within the agency (People, Culture and Learning; Engagement; Operations and Policy and Program) and the university researchers. Ethics approval was obtained from the University of South Australia Human Research Ethics Committee.

8.2.1 Study 1 Measures Study (Pilot)

Preliminary research was undertaken to develop organizational and individual resilience measures. A representative group of employees from the organization were selected using a demographic sampling frame of level and functional areas (field programs, donor programs, fundraising, influencing and support). For the preliminary study, $N = 50$ employees ($N = 20$ Managers and $N = 30$ Staff) were proportionately randomly selected from the specified areas using an organisational database. External consultants ($N = 5$) who had been working with the organisation, were randomly selected to participate. Of those approached, 95% of managers, 77% of employees, and 100% of consultants, took part in the study.

The employees selected received a personalised letter via the internal mail system inviting them to participate (voluntarily), and the letter included the questions that were to be canvassed in the interview. A face to face or telephone interview (depending on their physical location) was conducted. The interview was digitally recorded to ensure an accurate record of what was said, and the audio file was later transcribed. To ensure the usefulness of the questions, a pilot interview was conducted with a randomly selected employee and the transcript was analyzed by two members of the research team to ensure that the interview schedule yielded appropriate responses.

Organisational Resilience. There are no agreed upon measures of organisational resilience in the literature. A recent paper operationalised it in terms of supervisor relationships, peer relationships, career opportunities, rewards and decision making/control aspects related to task design and support, rather than system or organisational level aspects that we surmised were important (Ferris, Sinclair, & Kline, 2005). We asked participants, “What does it mean to be a resilient organisation in this line of work?”, “What do you believe are the important key dimensions of the agency that are needed to make it a resilient organization?”, “From these which

dimension/s do you believe are the most important?" If applicable an example of coping with adversity, for example the Tsunami, was given to try and explore the strengths of individuals and organizations during this time (both short term and long term). "How resilient were individuals and how resilient was the organization? How was resilience recognized?"

We used an inductive qualitative process to identify the constituent elements of organisational resilience (Miles & Huberman, 1994). We identified four key themes of organisational resilience, (1) adaptive management systems and (2) interdepartmental coordination, (3) leadership, and (4) PSC from the pilot qualitative interviews ($N = 55$). Analysis of the interviews provided information regarding possible items for the dimensions. An iterative process was then undertaken with the research steering committee. Questionnaire items were systematically endorsed or removed by consensus depending on their representativeness or validity as items for the theme/construct. Then the survey was trialled by members of the steering committee ($N = 15$) individually and feedback was obtained regarding the importance of the items as representative and the readability of items. For the PSC aspect a 26 items scale was already available. Using the iterative process with the committee twelve items for the PSC scale were selected. Note that the 12 items were different from the PSC-12 scale (Hall et al., 2010). For all scale items we used a five-point response scale (Hinkin, 1995).

Having constructed the new indicators we used Principal Axis Factoring with varimax rotation to assess the shared variance between the four factors that could represent organisational resilience. We first assessed the factor structure for redundancies. Items that loaded ambiguously across factors were removed in a series of factor analyses until a final solution was found; two items initially included in the leadership theme were integrated into adaptive management systems and the separate leadership theme was dropped. The Kaiser-Meyer-Olkin measure of sampling value was 0.91 (less than 0.5 indicates potentially large correlations between factors rendering the sample inadequate for factor analysis). The scree plot showed 4 factors with eigenvalues >1, together accounting for 58% of the variance. The first and second factors related to PSC. The third related to the interdepartmental coordination measure. The fourth related to adaptive management systems. As there was no discernable conceptual underpinning for two subscales in the PSC measure and given the cross-loadings of four items we retained these as one factor. Table 8.1 shows the rotated solution and the factor loadings for the items in factors of the organisational resilience scale:

(1) *Adaptive management systems*. The final scale comprised seven items as shown in Table 8.1. Cronbach's alpha ($\alpha = 0.79$) for this measure showed good reliability. A two item version of this scale has been subsequently used in research with remote nurses ($n = 610$), and finds that it correlated with emotional exhaustion $r = -0.10$, $p < 0.01$, and psychological distress $r = -0.15$, $p < 0.01$, and job satisfaction, $r = 0.29$, $p < 0.01$, but was not significantly related to engagement.
(2) *Interdepartmental coordination, collaboration, communication, and cooperation* tapped into the notion of operating as a "matrix" organisation (e.g. working

Table 8.1 Organisational resilience scale

Adaptive management systems	
1. The organisation is actively engaged in forward planning to be preventative rather than reactive to problem situations	0.71
2. Efficient processes and systems enable the organisation to progress through change and challenge	0.76
3. Internal systems are flexible to enable quick responses to an emergency situation	0.44
4. The culture is one that strives towards continuous improvement	0.58
5. Partnerships with external stakeholders are utilised regularly	0.46
6. Leadership/Executive team has a clear vision of the organisation's future and can organize the necessary resources to drive change	0.66
7. Decisions made by senior leaders of the organisation are transparent	0.57
Interdepartmental coordination, collaboration, communication and cooperation	
8. Knowledge and information sharing occurs regularly across the organisation	0.65
9. Employees consult each other when they need support	0.76
10. Cross-functional teams are used effectively in the organisation	0.73
11. Cross-functional teams are used effectively in my group	0.65
12. There is a culture of shared responsibility across the organisation	0.62
Psychosocial Safety Climate	
13. Managers/supervisors show an interest in my psychological well-being	0.82
14. The senior leaders at my workplace listen to me and care about my concern	0.81
15. Senior management show support for stress prevention through involvement and commitment.	0.80
16. I feel that the management at my workplace is concerned about my general welfare	0.83
17. There is good communication about psychological safety issues which affect me	0.55
18. Management considers employee psychological health to be equally important as productivity	0.73
19. I know the proper channels to report my concerns	0.41
20. I am comfortable talking with colleagues about workplace conditions which might have an impact on my psychological health	0.43
21. Participation and consultation in occupational health and safety occurs with employees, unions and health and safety representatives in my workplace	0.78
22. My contributions to resolving occupational health and safety concerns in the organisation are listened to	0.78
23. Employees are encouraged to be involved in psychological safety and health matters	0.73
24. In practice at the prevention of stress involves all levels of the organisation	0.50

across and in conjunction with other departments). The five item scale is shown in Table 8.1. The alpha coefficient was 0.81.

(3) *PSC* was assessed using 12-items (see Table 8.1). Responses were on a five-point scale (1 = strongly disagree to 5 = strongly agree) ($\alpha = 0.91$). The internal consistency of this scale and its convergent validity accords extremely well with other research. In a representative random sample of Australian workers ($N = 78$) the alpha coefficient for this 12 item version was 0.93 and the cross-sectional correlation with emotional exhaustion was $r = -0.28$, $p < 0.05$ and engagement 0.25, $p < 0.05$. These additional results provide support for the good psychometric properties of this version of the PSC scale.

Individual resilience. A new scale was required to assess individual resilience since previous resilience scales had a clinical emphasis having been constructed with survivors of tragedy, were very long, and only assessed resilience indirectly (Smith et al., 2008). Semi-structured interviews were conducted and participants were asked, "What does it mean to be personally resilient in this line of work?", "Who are your three most resilient staff?, "What are the constructs/dimensions of these employees?", and "How would you measure this in a behavioural sense (e.g., honesty could be measured by good communication skills)".

Seven themes emerged from the interviews that also consistently came up in the literature: (1) optimism (Connor & Davidson, 2003), (2) relationships with others—connectedness with others (e.g., Ahern, Kiehl, Sole, & Byers 2006), (3) flexibility—resilient individuals are more flexible and cope using personal protective resources or resources from their environment (e.g., Friborg, Hjemdal, Rosenvinge,. & Martinussen., 2006); (4) internal locus of control (Kobasa, 1979); (5) belief in oneself (Cederblad, Dahlin, Hagnell, & Hansson, 1994; Friborg et al., 2006; Werner & Smith, 1992); (6) humour (e.g., Tusaie & Dyer), and (7) perseverance (Wagnild & Young, 1993). Since several scales tapped these themes, we gathered the relevant items together, and in consultation with the industry committee eight items were chosen from existing scales to reflect the themes. A factor analysis using varimax rotation extracted one factor, with factor loadings ranging from 0.57 to 0.75 accounting for 42% of the variance. The item, "I dwell on past events" did not load well on the factor and was removed from the scale. Responses were on a five-point scale (1 = very rarely/never, 5 = very often/always) ($\alpha = 0.75$).

8.2.2 Study 2 Procedure

Participants

The sample comprised 371 permanent staff members (79% full-time, 21% part-time) of a humanitarian aid organisation, with a vision to eliminate poverty and its causes (76% response rate). Most participants worked within Australia doing fundraising, advocacy and administration work. Some 22% travelled internationally for less than four weeks per annum (22%), some for 1–3 months (15%), and a small number of

participants travelled for four or more months of the year (2.5%), to the field to assess and evaluate programs financed by the Australian government and supporters, doing relief and development work. Of the sample, 66% were female, and 33% were male, with 65.8% of participants between 26-45 years of age. We did not assess education level directly but were informed that the education level of most individuals was degree level or higher. Length of service was typically 1 to 3 years, with a range from 0 to 6 months to 10+ years.

The steering committee briefed their respective teams/departments regarding the upcoming survey. The questionnaire was accessible online and in hard-copy. Hard copies were distributed in staffrooms and meeting places throughout the organisation. A link to the questionnaire was made available on the staff intranet and the organisation's weekly electronic bulletin. Through these channels, employees were invited to participate in the study. Participation was voluntary and responses were anonymous. Participants were assured of confidentiality.

8.2.3 Measures

Job Demands was operationalised as work pressure and emotional demands. *Work pressure*. A five-item version of the Effort-Reward Imbalance (ERI) Questionnaire (Siegrist, 2002; Siegrist et al., 2004) was used. Items included, "I have constant time pressure due to a heavy workload" and "I have many interruptions and disturbances in my job". Participants responded on a four-point scale (1 = strongly disagree, 4 = strongly agree) ($\alpha = 0.79$). *Emotional demands*. The three-item emotional demands subscale from the Copenhagen Psychosocial Questionnaire (COPSOQ) (Kristensen, Hannerz, HØgh, & Borg, 2005) was used with items such as, "Does your work require you to hide your true feelings?" and "Does your work require that you become emotionally involved in your work?" Answers are on a five-point scale (1 = very rarely/never, 5 = very often/always). Cronbach's $\alpha = 0.73$.

Job resources was operationalised in terms of job control, decision authority and skill discretion. *Decision authority* was assessed using the three-item sub-scale from the Job Content Questionnaire (JCQ) (Karasek, 1985). The JCQ commonly used tool for measuring job characteristics, with reliability and validity demonstrated across a range of employee demographics, occupations, and countries (Karasek et al., 1998). An example item is "On my job, I have very little freedom to decide how I do my work" (reverse-scored). ($\alpha = 0.71$). *Skill latitude* was assessed with the JCQ six-item subscale, e.g., "I have the opportunity to develop my own special abilities". For both resource measures participants responded on a four-point scale (1 = strongly disagree, 4 = strongly agree) ($\alpha = 0.79$).

Work engagement was assessed using the nine-item version of the Utrecht Work Engagement Scale (UWES; Schaufeli, Bakker, & Salanova, 2006). The scale measures three dimensions of work engagement: vigour (e.g., "When I get up in the morning, I feel like going to work"), dedication (e.g., "My job inspires me") and

absorption (e.g., "I am immersed in my work). Responses were on a seven-point scale (0 = never, 6 = always, every day) (α = 0.92).

Individual resilience was assessed with seven items as per the measure derived in Study 1 (α = 0.75).

Psychological health symptoms was operationalised in terms of psychological distress and emotional exhaustion. *Psychological distress* was assessed using the twelve-item General Health Questionnaire (GHQ-12) (Goldberg, 1978). Questions include "Have you recently lost much sleep over worry?" and "Have you recently felt capable of making decisions about things?" Items are measured on a four-point Likert scale such as 1 = not at all, 2 = no more than usual, 3 = rather more than usual to 4 = much more than usual. The GHQ-12 is a well-validated and reliable instrument for the measurement of psychological impairment and has been extensively (Campbell, Walker, & Farrell, 2003; Lewig et al., 2007). In this study the scale had good reliability (α = 0.88). Lower scores indicate less distress or better psychological health. *Emotional exhaustion*. The five-item emotional exhaustion subscale of the Maslach Burnout Inventory (MBI, Maslach, Jackson, Leiter, Schaufeli, & Schwab, 1986), e.g., "I feel emotionally drained from my work" and "I feel used up at the end of the work day". Responses are on a seven-item scale (0 = never, 6 = always, every day). The MBI has been widely used and has good reliability and validity (for this study α = 0.90). Lower scores were used to indicate better psychological health.

Organisational Resilience. This was assessed using the scales derived in Study 1. Since the scales were independent as shown in the factor analysis but also correlated (from 0.41 to 0.59) (see Table 8.2) they were ideal indicators of the latent construct organizational resilience.

Table 8.2 Seven item individual resilience scale

1. I am able to think flexibly and adapt my behaviour	Need for flexibility and adaptation, in changing and uncertain circumstances (Youssef & Luthans, 2007)
2. I maintain a sense of humour	Sense of humour, (Rutter, 1985)
3. I maintain an internal locus of control (control is with me, not external forces)	Recognition of limits to control (Kobasa, 1979); Belief in oneself (Friborg et al., 2006)
4. I keep moving forward despite setbacks	Perseverance (Wagnild & Young, 1993)
5. I am able to maintain friendships and loving relationships	Close, secure attachment to others (Rutter, 1985)
6. I extract positive lessons	Optimism (Connor & Davidson, 2003)
7. I can take risks with the expectation that things will turn out well	Optimism (Connor & Davidson, 2003)

8.2.4 Analysis Strategy

We used structural equation modelling (SEM) and AMOS 24 software (Arbuckle, 2015) to assess (1) the factor structure of the organisational resilience measure and (2) the hypothesised model, testing mediational effects and controlling for measurement error (Holmbeck, 1997).

We to assess model fit (cf. Jöreskog & Sörbom, 1993) we used: the χ^2 goodness-of-fit statistic; the root mean square error of approximation (RMSEA); the goodness of fit index (GFI); the comparative fit index (CFI); and the normed fit index (NFI). Values of 0.90 or higher for GFI, CFI and NFI are indicative of a good fit (Hoyle, 1995) and RMSEA-values smaller than or equal to 0.08 indicate acceptable fit (Schermelleh-Engel, Moosbrugger, & Muller, 2003). We also used the AIC, Akaike information criterion, lower values indicating better fit. To test incremental fit of nested models to the data we used the χ^2 difference test (Jöreskog & Sörbom, 1993).

To demonstrate mediation we tested the following models; Model 1 was a test of the direct effects model, where organisational resilience (X independent) was related to psychological health symptoms, resilience and engagement (Y outcomes); Model 2 tested the hypothesized mediation paths as in Fig. 8.1, a fully mediated model with the direct effects paths of Model 1 set to zero; Model 3 tested a partially mediated model, combining Model 1 and 2. According to Holmbeck (1997), there is a significant mediational model when the addition of the direct paths in the model *does not* significantly improve the fit of the model (Model 3 does not add variance to Model 2). We note that significant relationships between *X* and *Y* is not initially required for mediation to be confirmed, particularly in the case when the antecedent, in this case organizational resilience is distal from the dependent variables (Shrout & Bolger, 2002).

The model consisted of three indicators (adaptable/flexible systems, interdepartmental collaboration and PSC) of the latent variable organisational resilience. Further, work pressure and emotional demands were two indicators of the latent job demands factor, whilst decision authority and skill discretion were the indicators for the latent job resources factor. In addition, psychological distress, and emotional exhaustion were indicators of the latent psychological health factor. Engagement was represented using three indicators each of three items pertaining to the subscales of vigor, dedication and absorption. Likewise individual resilience was indicated by two parcels of items. Psychological distress was logarithmically transformed prior to analysis to correct for skewness. The structural model allowed covariation between the structural residuals of demands with resources and of psychological health symptoms, individual resilience, and engagement.

8.3 Results

8.3.1 Descriptive Statistics

Intercorrelations, means and standard deviations are shown in Table 8.3. The variables relate to each other in expected ways and directions. There are a few exceptions; organizational resilience subscales adaptive management and interdepartmental coordination are not associated with individual resilience, and neither are job demands.

8.3.2 Mediation Effects

As shown in Table 8.4, the null or measurement model, with no paths between latent variables showed a poor fit to the data. The direct effect model, Model 1, was a significant improvement to the null model (Δ Chi-square (df = 3) = 42.34, $p <$ 0.001). The direct effect paths from organisational resilience to health, Beta = −0.40, B = −0.008, SE = 0.001, $p < 0.001$ and from organisational resilience to engagement, Beta = 34, B = 0.35, SE = 0.06, $p < 0.001$ were significant, but the direct effect from organizational resilience to individual resilience was not significant Beta = 10, B = 0.01, SE = 0.01, ns.

Model 2, which is the study model represented in Fig. 8.1, added indirect paths to the null model and significantly improved the null model (df = 7) = 219.79, $p <$ 0.001 and was a better fit than the direct effects model (df = 4) = 63.45, $p < 0.001$;

In Model 3 we added the direct effects to Model 2, and the model fit improved significantly, Δ Chi-square (df = 3) = 24.48, $p < 0.001$; a closer examination however revealed that the improvement was down to a significant direct effect of organizational resilience on engagement; since the other paths were not significant we did not include them in the final model. We considered the mediated hypotheses in light of this model (see Fig. 8.2 with significant paths).

Hypothesis 1 proposed that organisational resilience positively relates to worker psychological health through its negative relationship with task level job demands. The indirect effect of organisational resilience on psychological health symptoms was significant, Beta = −0.40 B = −0.007, SE = 0.06, $p < 0.01$, LL = −0.50, UL = −0.29. However the indirect effect could come via demands or resources. To rule out the explanation that the indirect effect was only due to resources, we set the regression weight of the resource to health path to zero, and found that the mediation via job demands still remained significant, Beta = −0.24, B = −0.06, $p < 0.01$, LL = −0.34, UL = −0.15. Hypothesis 1 is supported.

Hypothesis 2 proposed that organisational resilience positively relates to work engagement through its positive relationship with job resources. We found that the

Table 8.3 Range, mean, standard deviation and intercorrelations

	Range		M	SD	1	2	3	4	5	6	7	8	9	10
1. Adaptive Management	7	35	23.30	4.40										
2. Interdepartmental Coordination	5	25	16.31	3.45	0.59**									
3. Psychosocial Safety Climate	12	60	41.35	8.00	0.52**	0.41**								
4. Work Pressure	5	20	12.96	2.58	−0.19**	−0.13*	−0.19**							
5. Emotional Demands	3	15	8.44	2.36	−0.27**	−0.15**	−0.14**	0.46**						
6. Skill Discretion	7	24	17.22	2.73	0.13*	0.14**	0.25**	0.27**	0.13*					
7. Decision Authority	3	12	8.61	1.68	0.16**	0.17**	0.30**	0.17**	0.04	0.70**				
8. Emotional Exhaustion	5	35	17.59	6.95	−0.17**	−0.06	−0.28**	0.34**	0.37**	−0.10	−0.08			
9. Psychological Distress	13	48	24.33	5.75	−0.27**	−0.19**	−0.34**	0.20**	0.28**	−0.24**	−0.25**	0.46**		
10. Individual Resilience	17	35	28.35	2.96	0.02	0.05	0.17**	−0.02	−0.01	0.26**	0.27**	−0.17**	−0.25**	
11. Engagement	14	63	50.69	9.39	0.25**	0.16**	0.31**	0.05	−0.04	0.43**	0.37**	−0.30**	−0.34**	0.42**

Note. **$p < 0.01$ (two-tailed); * $p < 0.05$ (two-tailed)

Table 8.4 Comparison of alternative models

	χ^2	df	GFI	CFI	NFI	RMSEA	AIC	(df) $\Delta\chi^2$ sig
Null model	410.43	73	0.86	0.82	0.79	0.11	474.43	
M1. Direct effect	362.90	70	0.88	0.85	0.82	0.11	432.09	M1 versus Null (3), 42.34, $p <$ 0.001
M2. Fully mediated	190.64	66	0.93	0.93	0.90	0.07	268.64	M2 versus M1 (4), 63.45, p <0 .001
M3. Partially mediated	166.16	63	0.94	0.95	0.92	0.07	250.16	M3 versus M2 (3), 24.48, $p <$ 0.001

Note $\chi 2$ goodness-of-fit statistic; *GFI* Goodness of Fit Index; *CFI* Comparative Fit Index; *NFI* Normed Fit Index; *AIC* Akaike information criterion; *RMSEA* Root Mean Square Error of Approximation

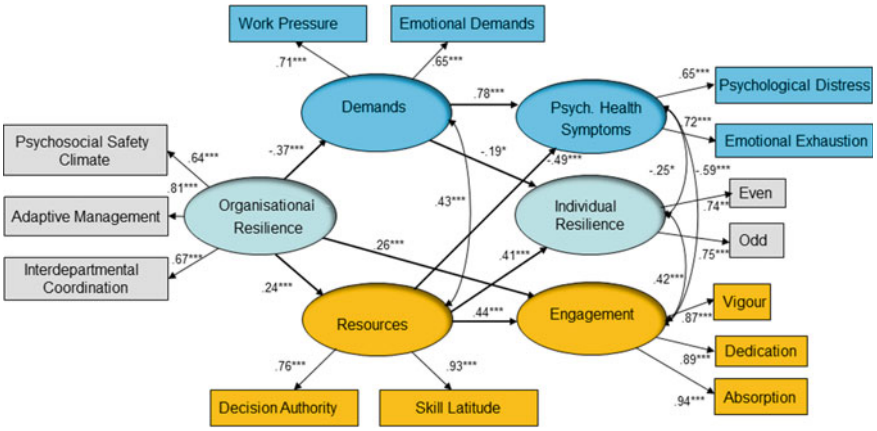

Fig. 8.2 Final organisational resilience model

indirect effect was significant, Beta = 0.10, B = 0.03, $p < 0.01$, LL = 0.05, UL = 0.16. Hypothesis 2 is supported.

Hypothesis 3 proposed that organisational resilience positively relates to psychological health through its positive relationship with resources. As noted in Hypothesis 1 above, the indirect effect of organizational resilience on psychological health could come through both demands and resources. Probing further, this time we set the regression weight of the demands to health path to zero and found that the relationship to health from organisational resilience via resources also remained significant;

the indirect effect was, Beta = −0.07, B = −0.001, SE = 0.03, $p < 0.01$, LL = −0.047, UL = −0.023. Hypothesis 3 is supported.

Hypothesis 4 proposed that organisational resilience positively relates to individual resilience via its negative relationship to demands (4a) and positive relationship with resources (4b). The indirect effect of organisational resilience on individual resilience was significant, Beta = 0.16, B = 0.02, SE = 0.05, $p < 0.01$, LL = 0.099, UL = 0.278. Further probing showed that when the regression weight of the resource to individual resilience path was set to zero, the indirect effect via demands was not significant, Beta = 0.009, B = 0.001, SE = 0.034, n.s. When the indirect path via resources was considered with the regression weight of the demands to individual resilience set to zero, the indirect effect was significant, Beta = 0.08, B = 0.008, $p < 0.01$, LL = 0.037, UL = 0.146. This means that Hypothesis 4 is supported but only via resources; OR → R → IR.

8.4 Discussion

As organisations respond to increasing competition, challenges and demands from the external environment and in search of greater productivity, workers are often being called upon to manage the burden, to be resilient, and to practice resilience through individual techniques such as mindfulness, physical exercise, and diet. However, this individual burden may be misplaced. We argued for the as yet unstudied but logical proposition that the resilience of organisations may be important for worker psychological health, resilience and engagement. This paper aimed to examine the relationship between organisational resilience and worker psychological health symptoms, individual resilience and engagement, and possible mechanisms underlying the relationships. We explored theory-driven relationships using the construct of organisational resilience as a precursor to job-level factors within the JD-R theoretical framework (Bakker & Demerouti, 2017; Demerouti et al., 2001). In particular, four pathways through which organisational resilience was predicted to affect psychological health symptoms and motivation were tested (i.e. health erosion, motivation and a health erosion cross-links, and job resource-personal resource transition).

In Study 1, using interviews, piloting of questions, and factor analyses we developed scales to assess three core factors underlying organisational resilience; adaptive management systems, PSC, and interdepartmental coordination. We also developed a new individual resilience scale by drawing items from the literature to reflect themes emerging from interviews. A twelve item PSC scale was derived from the PSC-26 scale. In Study 2 we tested the theoretical model using structural equation modelling, in a sample of 371 humanitarian workers.

As hypothesised, we found full support for the health erosion pathway, as job demands carried the effect of organisational resilience to psychological health. This is consistent with the previous literature. Specifically, Dollard and Bakker (2010) found PSC to influence psychological health symptoms, and that job demands mediated

the relationship (health erosion hypothesis). Additionally, we also found that job resources carried the influence of organisational resilience on to psychological health symptoms (cross-links hypothesis). Thus, it appears that system level attributes give rise to psychological health symptoms at the individual level via a combination of high job demands and low resources. Other humanitarian studies support this finding of negative health effects related to unfair distribution of resources potentially arising from systemic level resilience (Jachen et al., 2018).

Further, organisational resilience had a positive effect on work engagement through its relationship with job resources (motivation hypothesis). The latter part of this relationship is consistent with prior research (Hakanen et al., 2006; Schaufeli & Bakker, 2004), finding that job resources positively related to work engagement, and other motivational outcomes (Bakker & Demerouti, 2017). Finally we found that organisational resilience was related to individual resilience via job resources (job resource-personal resource transition pathway) but not job demands.

8.4.1 Theoretical Implications

The findings suggest several theoretical implications. First, there is merit in conceptualising resilience as two distinct entities, as a property of the organisation and the individual. When considering individual resilience, our research findings imply that it may be conceived as a product of the resilience of the organisation itself. When organisations are flexible and adaptable, and have good coordination between organisational components and the PSC of the organisation is high, we expect that employees will be resilient. This is a much needed shift in theorising in the field which is dominated by conceptualisations of resilience as an individual phenomenon with only individual remedies to build it. Moreover the research findings uncovered a process by which organisational resilience is likely to build individual resilience through the supply of resources—in this case job control in the form of decision authority and skill latitude. Further, conceptualizing organisational resilience, in part, in terms of a humane system where there is balance of psychosocial safety and performance goals (i.e. PSC) (Hale & Heijer, 2006) was a fruitful line of research in accounting for psychological health and engagement of workers.

Aside from implications for theorising resilience itself there are implications for the development of JD-R theory. Our research confirmed its original hypotheses, but more importantly, expanded the model, by incorporating the notion of organisational resilience within the framework. Embedded in the functioning of organisational resilience is its impact on job design components, and for this reason organisational resilience can be seen as an upstream precursor to the JD-R framework. This upstream role has already been uncovered for PSC, and here this is expanded to include other organisational resilience components (adaptability and coordination).

Considering the extended health erosion hypothesis of the JD-R model, when organisations are less resilient, workers face more future demands (the system can not manage them), and in line with the health erosion hypothesis, their psychological

health symptoms such as emotional exhaustion and distress may increase. Organisational resilience extends the motivation hypothesis of the JD-R model too. When there is high organisational resilience, there are likely more resources (see also the stable platforms idea, Dollard & Karasek, 2010) that worker can use to go about their jobs. With more flexibility in the system workers are likely given more job control in the form of discretion in how to use their skills, and more authority over workplace decisions that affect them. As resources (such as job control) increase so too does engagement. This relationship is in line with motivational theory—that work engagement among employees increases when resources are functional in achieving work goals, and/or stimulate personal growth.

Theoretically we proposed and found support for the notion that individual resilience is distinct from, but related to both psychological health symptoms and engagement. Low levels of individual resilience likely implies low levels of coping resources and inadequate coping responses (inflexible coping), that may co-relate with psychological health symptoms. High levels of resilience implies surplus personal resources and energy required for vigor, dedication and absorption, in other words engagement in work related tasks.

8.4.2 Practical Implications

Currently many organisations are expending huge funds on individual level resilience training to assist workers to cope with and respond to workplace demands, challenges and change. Our research suggests that it might be more efficient and have more wide-ranging effects if the common source of individual resilience, psychological health symptoms and engagement is targeted. Organisational resilience was a common antecedent to all of these outcomes, and the most distal, and therefore according to the hierarchy of controls logic, should be targeted for improvements in the outcomes. Decisions made in times of challenge to keep bolstering worker resources rather than constraining them, and not maximising demands, should lead to a workforce more resilient to cope with future challenges and demands. This is at odds with the decisions often made in the face of threats, to require staff to do more (increase demands) with less (reduced resources). For the organisation, building adaptable, flexible systems, facilitating greater coordination, and building a climate that develops policies, practices and procedures for the protection of worker psychological health, should in turn generate strategic decisions about job design, and working conditions that are conducive to psychological health, resilience and engagement.

A broader implication of low, engagement, individual resilience, and psychological health (among other things) is retention (Borman, Ilgen, & Klimoski, 2003; Schaufeli & Bakker, 2004). This is of particular importance in the current marketplace, where skill-shortages face most industry sectors. It would be of interest to investigate exit data over time, and performance in relation to the above to quantify the impact of organisational resilience on the retention of staff within the system.

It should be noted that this sample of humanitarian workers reports high levels of psychological distress—32% of employees scored high-severe on the GHQ-12 standardised measure of health and well-being. This level is indicative of the need for assistance by a mental health professional. The levels of PSC were higher than national Australian standards on average—56% were in low risk (high PSC contexts), 19% in medium risk, 21% in high risk, and 4% in very high risk (very low PSC) for job strain and depression (Bailey, Dollard, & Richards, 2015; Dormann, Owen, Guthier, & Dollard, 2017) nevertheless variability in PSC along with other resilience aspects are significantly linked to distress. Nevertheless high levels of engagement (Schaufeli & Bakker, 2003) were found with 81.5% reporting high to very high levels of engagement. This phenomenon has been noted before in human service workers (Dollard, Winefield, & Winefield, 2001), and humanitarian workers (Jachens et al., 2018), where despite levels of burnout, possibly due to vocational calling and meaning of work (giving to the mission of the organisation), workers continue to work with high levels of engagement. The sustainability of this should however be borne in mind.

8.4.3 Limitations, Strengths, and Future Research

As with most research this study has both strengths and limitations. This study attempts to assess organisational level factors with individual perceptions yet the optimal research strategy would be to sample many organisations, and aggregate organisational resilience data to the organisational level then try to predict individual level outcomes averaged at the organisational level. Within organisation studies are constrained methodologically to individual level analysis. However, practically within organisations there is a need to know how organisational systems impact on lower level entities, so that interventions can be targeted in the right place. Nevertheless individual responses may lead to an over estimation of effects due to the nested nature of the data and common method effects. The observation that the theory holds, at least at an individual level, gives us confidence about our theoretical propositions, but we concede that further multilevel research of the model is definitely needed.

The integration of multilevel approaches that discern within- and between- person influences are required to illuminate how global and daily measures of demands, resources and employee psychological health, resilience and engagement relate to each other, causally, and reciprocally as feedback mechanisms across time (Bakker & Costa, 2014; Bakker, 2015). For instance, based on affective events theory (AET; Weiss & Cropanzano, 1996), Bakker (2015) outlines that repeated exposure to daily job demands will result in high levels of aggregated daily exhaustion, which predicts chronic exhaustion; repeated exposure to daily job resources will result in high levels of aggregated daily engagement, which predicts general work engagement. It can be argued that daily exposures to demands and resources will result in daily and general levels of resilience, but particularly for demands we do not know what type

of demands, and the level of demands, and the level of exposure, that precipitate resilience.

Although we have conceived organisational resilience in terms of adaptation, flexibility and progressing though change, some may view resilience as a process of bouncing back. In this respect we could expect that organisational resilience grows as demands grow; as organisational resilience grows at a future certain point, exposure to work demands would decrease, as demands can be handled more effectively at an organisational systems level. Our research design only considered the latter process, exploring effects once organisational resilience is built (via various systems). Future longitudinal designs would be helpful to track whether exposure to high demands leads to organisational and individual resilience over time and other contextual conditions that may be required.

In the absence of suitable measures our study trialled a specific measure of organisational resilience, and individual resilience, informed by organisational member sense making (Weick, 1995) and the scientific literature. However further validation of the instruments is still required. Using SEM we were able to use a measurement model and a structural model to test our measures and theory simultaneously and found a good fit for our model to the data. In this, we proposed and confirmed a nomological network of relationships thus providing validation support for the new constructs and the theory (Cronbach & Meehl, 1955). Additionally, the reliability of the measures was acceptable.

The study was conducted within a large humanitarian aid organisation, and whilst the sample was representative of the organisation, the organizational resilience construct and its relationship with job demands and resources needs to be verified in other organisations, to ensure its validity. Nevertheless, a core component of organisational resilience was PSC, and the results accord well with previous research using the PSC measure alone (e.g., in education workers, Dollard & Bakker, 2010, and police, Bond, Tuckey, & Dollard, 2010). Therefore we do expect that our hypotheses would hold in other humanitarian and occupational samples.

The study was cross-sectional in design and thus the associations found in the model could be due to common method effects rather than substantive relationships. Moreover the cross-sectional nature does not throw light on possible competing reverse interpretations, or indeed feedback loops (see above)—for instance psychological health symptoms, individual resilience and engagement could reasonably influence perceptions of demands, and resources, and perceptions of organisational resilience (see Bakker & Demerouti, 2017 regarding feedback looks specified in JD-R theory). Future research could investigate whether the experience of working conditions gives rise to new perceptions of the organisational climate (e.g., bottom up processes).

Further, responses may be due to the timing of the survey (for example results might be different if the survey occurred during times of disaster); in single data point studies it is difficult to account for time of testing effects.

Future research could consider the impact of organisational resilience on other possible work resources, such as rewards and support. For example, social support has been recognised as important in building resilience at the individual level (Jackson,

Firtko, & Edenborough, 2007), mitigating the effects of stress and burnout (Ferris, Sinclair, & Kline, 2005), and bolstering engagement.

8.5 Conclusion

Organisational resilience reflects the capacity of the organisation to cope with challenge, through flexible, adaptable and interactive systems, whilst maintaining organisational performance and sustaining the psychological health, individual resilience, and engagement of workers. There is evidence that the mechanism for the action of organisational resilience on worker psychological health, individual resilience, and engagement is through the regulation of task level job design. Organisational resilience is a systems resource that exerts influence over job-level factors, and via job demands and resources affects worker psychological health symptoms, and via resources (only) fosters individual resilience and engagement. The present study provides important insights into identifying the leverage points for intervention, and indicates that tackling resilience as an organisational/system level phenomenon, should improve job conditions, reduce psychological health symptoms, and maximise individual resilience and engagement.

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