Keep Calm and Carry On? An Investigation of Teacher Burnout in a Post-disaster Context

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This study sought to investigate teachers' burnout perceptions and workplace attitudes in the aftermath of the major Christchurch earthquakes. A Burnout Model was proposed whereby emotional exhaustion and cynicism were hypothesised to mediate the relationships between disaster-related and role-related variables (quality of school support for staff and students, role conflict and role overload), and turnover intentions. A sample of 125 Christchurch teachers completed an online survey. Results revealed that schools' ineffective disaster responsiveness, impact of the disaster on school facilities and teaching, and perceptions of role overload were associated with increased levels of burnout, and that the relationship between role overload and turnover intentions was mediated by perceptions of emotional exhaustion. Implications for disaster research and recovery in school settings are discussed.

Keywords: Burnout, Role Stressors, Turnover, Post-Disaster

On September 4th 2010, a magnitude 7.1 earthquake struck the city of Christchurch in New Zealand. While there was extensive property and infrastructure damage, remarkably there were few injuries and no fatalities. The following year, on February 22nd, Christchurch was hit by another earthquake of magnitude 6.3, killing 185 people, injuring hundreds, and causing widespread damage to city infrastructure. Christchurch residents continue to experience earthquakes, with over 11000 quakes recorded since the original event in 2010.

The unpredictable, uncontrollable and violent nature of earthquakes holds serious implications for psychological health, including increased post-traumatic stress disorder (Bödvarsdóttir, & Elklit, 2004; Fan, Zhang, Yang, Mo, & Liu, 2011; Kwon, Maruyama, & Morimoto, 2001; Zhang, Shi, Wang, & Liu, 2011), and depression and anxiety disorders (Fan et al., 2011; Zhang et al., 2011). Recent research has found that Christchurch residents have experienced

psychological distress, including self-reported cognitive dysfunction, sleeplessness, heightened stress (Kemp, Helton, Richardson, Blampied, & Grimshaw, 2011), depression and anxiety (Dorahy & Kannis-Dymand, 2011; Kemp et al., 2011).

While Christchurch residents' psychological health has been given considerable attention after the earthquakes, there has been limited research into how the earthquakes have affected individuals at work. In fact, acute extra-organisational stressors (e.g., natural disasters) have been studied extensively in relation to individual mental health outcomes, yet there has been limited focus on workplace outcomes (Byron & Peterson, 2002; Qin & Jiang, 2011). The scarce amount of quantitative studies available suggest that disasters can have a negative impact on employee outcomes, such as increased job tension (Hochwarter, Laird, & Brouer, 2007), increased employee absenteeism (Byron & Peterson, 2002), and decreased job

satisfaction (Qin & Jiang, 2011). Within the Christchurch context, qualitative research has uncovered a trend wherein employees were engaged with their work in the initial earthquake aftermath, but over time have become increasingly disengaged (Nilakant & Walker, 2012), suggesting a protracted stress effect that remains largely unexamined.

One particular outcome that is yet to be adequately studied within a post-disaster context is employee burnout, a job-related outcome that develops in response to chronic stressors (Maslach, Schaufeli, & Leiter, 2001). Teaching is a notoriously high-stress profession (Travers & Cooper, 1993; Schwab, Jackson, & Schuler, 1986), and multiple studies have shown that emotional exhaustion is more prevalent in teachers compared to other occupations (Schaufeli & Enzmann, 1998; Innstrand, Langballe, Falkum, & Aasland, 2011). After the major earthquakes, Christchurch teachers have had considerable changes to cope with, including fluctuations in student enrolment, deteriorating student behaviours, damaged buildings, site sharing with other schools (Ministry of Education, 2012a), school closures, and school mergers (Ministry of Education, 2012b), rendering them particularly vulnerable to stress-related outcomes such as burnout.

Due to the scarcity of burnout research anchored in a post-disaster context, the importance of identifying burnout sources in this context to delineate appropriate interventions, and the likelihood that ordinary stressors of the teaching profession have been exacerbated (e.g., increased workload, instances of student misbehaviour),

the current study explored antecedents and outcomes of teacher burnout in Christchurch. In particular, the study sought to investigate, a) whether the impact of earthquakes on teachers' personal and professional lives, and perceptions of school disaster responsiveness, affected burnout, b) the impact of role stressors, namely role conflict and role overload, on teacher burnout, c) the relationship between burnout and turnover intentions, and d) whether burnout mediates the relationship between role-related and disaster-related antecedents and turnover intention.

Burnout in a Disaster Context

Burnout is comprised of three underlying dimensions: emotional exhaustion, cynicism and reduced personal accomplishment (Maslach et al., 2001). Emotional exhaustion refers to an employee's lack of energy and depletion of emotional resources. Cynicism (sometimes also described as depersonalisation) refers to an employees' psychological detachment from their work. For teachers, this psychological detachment can be exhibited though indifferent or negative attitudes towards students (Maslach, Jackson & Schwab, 1996). Finally, reduced personal accomplishment (also described as reduced personal efficacy) refers to employees' feelings

of incompetence. Researchers have argued, however, that reduced personal accomplishment develops independently of emotional exhaustion and cynicism (Lee & Ashforth, 1996; Shirom, 2005) and that it is less strongly predictive of job attitudes (Alarcon, 2011). On the basis of these findings, only emotional exhaustion and cynicism were examined in this study.

While the work context has received considerable attention as a cause of burnout (Halbesleben & Buckley, 2004), the literature has not explored burnout in relation to extreme, unstable work and life contexts, and it is likely that burnout is more prevalent among employees who are coping with disaster-related aspects in addition to their regular workload. This can be partly explained by theories of reactions to long-term stress. While life threatening events induce an alarm stress reaction are essential to survival, long-term preparedness (cf. Selye, 1956), as is often the case after disasters with societal impact, may result in chronic stress, which in turn has been well documented in disaster survivors, expressed as post-traumatic stress disorder, depression, and anxiety (Bödvarsdóttir & Elklit, 2004; Fan et al., 2011; Kwon et al., 2001; Zhang et al., 2011; Kemp et al., 2011; Dorahy & Kannis-Dymand, 2011). Conceptually, burnout is considered a chronic stress outcome, and like disaster exposure,

it has been found to correlate with post-traumatic stress disorder (Mitani, Fujita, Nakata, & Shirakawa, 2006), depression, and anxiety (Maslach et al., 2001). Therefore, it is meaningful to study burnout and disaster exposure in a common framework, to describe individual attitudes and wellbeing at work in the aftermath of a disaster. The present study investigated whether the burnout dimensions of emotional exhaustion and cynicism played mediating between to disaster-related antecedents, role-related antecedents, and turnover intentions.

Disaster-related antecedents of burnout

This study explored three disaster-related aspects believed to influence burnout: a) the extent to which individuals' personal lives were affected by the disaster (*personal disaster impact*), b) the extent to which the workplace – in this case schools – was affected by the disaster (*school disaster impact*), and c) the extent to which schools responded appropriately to student and staff needs (*perceived school disaster responsiveness*).

Personal disaster impact.

The Christchurch earthquakes have had a profound effect on many people's lives, with many residents still dealing

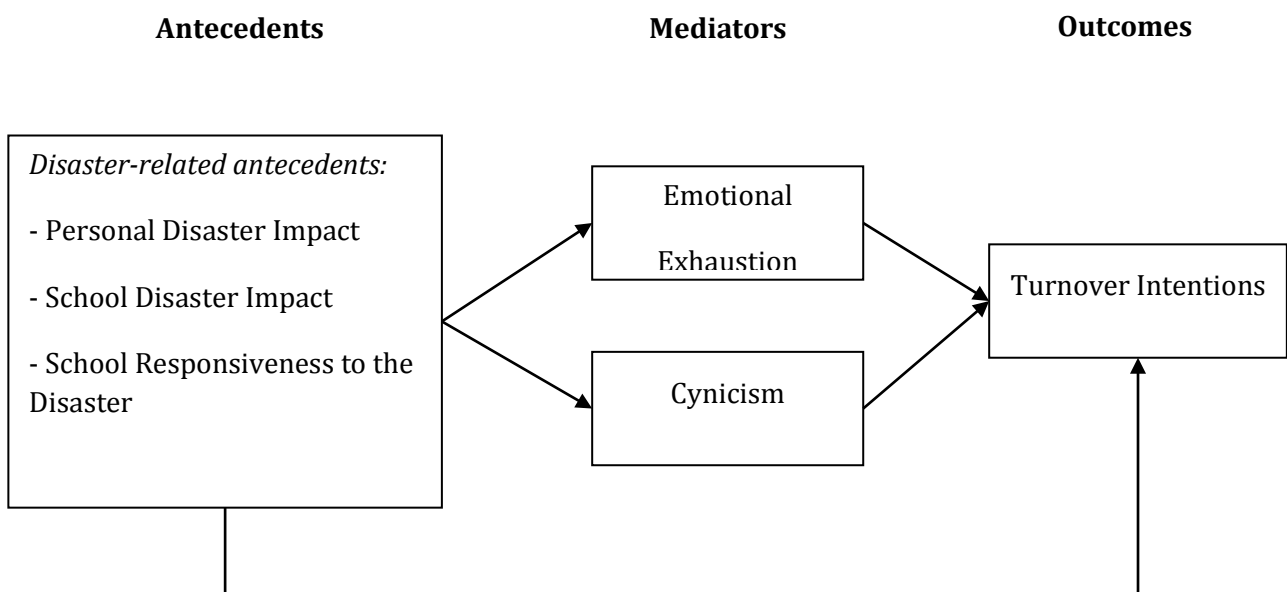**Antecedents**   **Mediators**   **Outcomes**

Figure1. Overview of the Burnout Model within a Disaster Context

with earthquake-related hassles two years after the first event in 2010. In particular, dealing with property damage, and government and insurance pay-outs emerged as common stressors in the aftermath of the earthquakes. Hence, *personal disaster impact*, defined as the negative impact that the earthquake has had on personal life outside of work, should constitute an important burnout antecedent in the months following the major earthquakes.

Research investigating the interplay between work and non-work domain stressors can inform expectations of burnout in a disaster context. For example, Greenhaus and Parasuraman (1987) argue that both work and non-work stress can spill-over negatively to job outcomes, and that non-work pressures can prompt or exacerbate work pressures. Indeed, family-to-work conflict has consistently been related to burnout (Cinamon & Rich, 2010; Rupert, Stevanovic, & Hunley, 2009). Similar to the family-related stressors explored in these studies, it is expected that disaster-related stressors will spill-over to the work sphere and contribute to feelings of burnout. Therefore, the following was hypothesised:

Hypothesis 1a) *Personal disaster impact* will be positively related to *emotional exhaustion*

Hypothesis 1b) *Personal disaster impact* will be positively related to *cynicism*

School disaster impact.

Not only have the earthquakes impacted personal lives, but they have had a profound effect on schools across Christchurch. Nearly all 215 state and integrated schools in Christchurch have experienced some damage to infrastructure, adding to an estimated repair cost of $700 million (Ministry of Education, 2012a). Teachers operate in uncertain and insecure working conditions, while schools experience disrupted school years, fluctuating student enrolments, and disruptive pupil behaviour (Ministry of Education, 2012a). Additionally, due to the consequences of the earthquakes, the government has proposed that some schools close or merge with other schools in future years (Ministry of

Education, 2012b). Hochwarter et al.'s (2008) research on hurricane-induced job stress after Katrina showed that hurricane-induced job stress was associated with elevated levels of job tension. Similarly, it is expected that teacher burnout levels will be greater in schools that were more affected by the earthquakes (i.e., *greater school disaster impact*). Hence, the following relationships were hypothesised:

Hypothesis 2a) *School disaster impact* will be positively related to *emotional exhaustion*

Hypothesis 2b) *School disaster impact* will be positively related to *cynicism*

Perceived school disaster responsiveness.

Research conducted among emergency workers dealing with traumatic events highlights the organisations 'critical responsibility in building resilience and fostering post-traumatic growth, through supportive practices, policies and management styles (Shakespeare-Fitch, 2005). After the September 11, 2001 terrorist attack, organisations that provided targeted support to employees reported high job satisfaction despite the event-related strain experienced by staff (Byron & Peterson, 2002). Simple organisational measures such as allowing employees to openly talk about tragedy and sending a company-wide email expressing concern for victims, contributed significantly to increased job satisfaction (Byron & Peterson, 2002). Recent findings from research conducted in Christchurch shows that employees held more positive perceptions of organisations that reached out to assess staff welfare through e-mails or phone calls, ensured that basic human needs were met (e.g., provision of food and water), and pledged ongoing support for work and non-work needs (Nilakant & Walker, 2012). Even under a stable external environment, organisational support is considered a job resource that can protect employees from developing burnout, and in particular disengagement from the job and the profession (i.e., cynicism) (Demerouti et al., 2001), so it is reasonable to expect that organisational support plays an important role in mitigating burnout in a post-disaster context.

The present study has not addressed the success or failure of specific recovery interventions, but examined perceptions of effective *perceived school disaster responsiveness*, and the link between these perceptions and employee burnout. While there is no specific literature to guide a hypothesis, it is expected that positive perceptions of *school disaster responsiveness*, similarly to organisational support, will be a health-promoting factor associated with lower incidence of burnout. Therefore, it was hypothesised that:

Hypothesis 3a) *Perceived school disaster responsiveness* will be negatively related to *emotional exhaustion*

Hypothesis 3b) *Perceived school disaster responsiveness* will be negatively related to *cynicism*

Work-related antecedents of burnout

Role theory suggests that stress responses emerge when employees experience expectations that are conflicting, overloading, or ambiguous, and role stress has been found to play a strong role in the aetiology of burnout (Alarcon, 2011; Lee & Ashforth, 1996; Maslach et al., 2001).

Role conflict.

Role conflict in a school setting occurs when teachers experience incompatibility between student, parent, and administration demands (Pettegrew & Wolf, 1982). These conflicting demands may result in stress experiences which lead to burnout. In the context of the present study, teachers in Christchurch have been faced with the need to conciliate the pressure to adopt a business as usual approach and deliver curriculum as planned, with their own perceived obligation to accommodate students that are emotionally and cognitively depleted. Such competing demands are expected to result in stress responses among the teachers. Previous research indicates that role conflict accounts for a significant amount of variance in both emotional exhaustion and cynicism (Alarcon, 2011; Schwab & Iwanicki, 1982; Schwab et al., 1986), and this stressor may be particularly salient within uncertain contexts such as

after a disaster. Therefore, the following is hypothesized:

Hypothesis 4a) *Role conflict* will be positively related to e*motional exhaustion*

Hypothesis 4b) *Role conflict* will be positively related to *cynicism*

Role overload.

Role overload has been defined as the extent to which employees perceive that the time and resources available to meet expectations to fulfil a role are inadequate (Örtqvist & Wincent, 2006). The relationship between role overload and both emotional exhaustion and cynicism is well established (Alarcon, 2011; Lee & Ashforth, 1996; Örtqvist & Wincent, 2006), particularly in the teaching profession (Dorman, 2003; Maslach et al., 2001; Leiter & Maslach, 2009). After the Christchurch earthquakes, employees from service sector organisations reported increased workload, and felt additional strain from interacting with highly stressed customers (Nilakant & Walker, 2012). Faced with increased number and complexity of professional roles, which includes the increased need for disciplinary action, provision of pastoral care to students and parents, and increased administrative load resulting from school restructuring processes (e.g., school mergers), it is plausible that teachers may be more prone to burnout symptoms in the post-earthquake environment. The following is proposed:

Hypothesis 5a) *Role overload* will be positively related to *emotional exhaustion*

Hypothesis 5b) *Role overload* will be positively related to *cynicism*

The Mediating Role of Burnout

The relationship between burnout and withdrawal behaviours has been extensively examined in the literature (Alarcon, 2011; Lee & Ashforth, 1996; Swider & Zimmerman, 2010; Wright & Cropanzano, 1998), which indicates burnout as an antecedent of turnover intentions and performance (Swider & Zimmerman, 2010). Similar findings are also reflected in the teaching profession; emotionally exhausted teachers report increased intentions to quit, while

cynical teachers tend to exert less effort at work (Schwab et al., 1986).

The research to date has examined absenteeism in a disaster context (for example, Byron & Peterson, 2002; Qin & Jiang, 2011), but not turnover. Recent reports showing that Christchurch organisations are experiencing great difficulties in retaining their staff after the 2010 and 2011 earthquakes (Department of Labour, 2011) underscore the importance of ascertaining burnout levels and its relationship with turnover intentions in the post-disaster environment.

In addition to its impact on withdrawal behaviours, the literature consistently notes the mediating role of burnout on the relationship between work-related attitudes and organisational outcomes. Recent studies have identified burnout as a mediator of the relationships between job demands, job resources, and a number of organisational outcomes (Bakker et al., 2008; Bakker, Demerouti & Verbeke, 2004; Hakanen, Bakker, & Schaufeli, 2006; Schaufeli & Bakker, 2004; Hu, Schaufeli, & Taris, 2011). Relevant to the present study, a study conducted in a sample of Finnish teachers identified the mediating effect of burnout on the relationship between job demands (i.e., disruptive pupil behaviour, work overload and poor physical environment) and health outcomes (Hakanen et al., 2006). Given the evidence outlined, the present study hypothesized the following:

Hypothesis 6: *Emotional exhaustion* will mediate the relationship between: a) *personal disaster impact*, b) *school disaster impact*, c) *perceived school disaster responsiveness*, d) *role conflict*, e) *role overload*, and *turnover intentions*.

Hypothesis 7: *Cynicism* will mediate the relationship between: a) *personal disaster impact*, b) *school disaster impact*, c) *perceived school disaster responsiveness*, d) *role conflict*, e) *role overload*, and *turnover intentions*.

Method

Participants and Procedure

Data were collected during the second half of 2012. In order to recruit the intended sample of school teachers, principals from 37 schools across Christchurch were approached and

asked to distribute an anonymous online survey to their staff. In order to reach a representative sample of schools in differentially affected earthquake areas, a deliberate effort was made to approach schools from various suburbs across the city. In total, 29 principals agreed to distribute the survey link to their staff via email. As the responses were completely anonymous and teachers could not be matched with specific schools, the response rate of survey completion is unknown.

The final sample was comprised of 125 teachers, 29 male and 94 female (two declined to state their gender). The sample included 61 primary, 7 intermediate, 53 secondary, and 4 teachers that taught more than one level. The mean age of the participants was 44.93 years (*SD*=11.87) and the mean tenure with the school was 8.95 years (*SD*=7.57).

Measures

Even if most of the measures used were already established scales, all measures were subjected to exploratory factor analysis (principal axis factoring) to ensure good measurement properties. Unless otherwise noted, uni-dimensional structure was supported. Cronbach's alpha indicated the internal consistency for each scale.

The *Personal Disaster Impact* scale was constructed for the purposes of this study (see Appendix 1) assessed the extent of the earthquake's negative impact on the participants' personal lives. There was a general introductory sentence to the items of this scale – "*The 2010 and 2011 Earthquake Events have negatively impacted*"– followed by nine items, including: "my financial situation", "my health" and "my housing situation through severe damage to or loss of property". Participants were asked to rate their responses on a 5-point scale ranging from 1 (to a very little extent) to 5 (to a very large extent). Two items "the health of one or more of my family members" and "my housing situation by adding occupants (e.g., relatives, friends) to my residence" were deleted from further analyses after a factor analysis (principal axis factoring) revealed low factor loadings (below .4) on the single factor that was identified. After removing these items, the alpha

obtained was .79.

The *School Disaster Impact* scale consisted of five items, developed to assess the earthquake's negative impact on school buildings, infrastructure, facilities, work materials, sensitive documents, and the deterioration of teaching provision. As with the personal impact scale, there was a standard introductory sentence to the items. An example item includes, "damage to, or loss of, important or sensitive school documents (e.g., student files, teaching resources)". Participants were asked to rate each item on a five-point scale, ranging from 1 (to a very little extent) to 5 (to a very large extent). Exploratory factor analysis (principal axis factoring) revealed that all items loaded on a single factor. The internal consistency for this scale was α=.88.

The *Perceived School Disaster Responsiveness* scale, consisting of six items, was developed for this study to measure participant perceptions of school effectiveness in addressing student and staff needs after the earthquake. Responses to each statement were anchored on a 5-point scale ranging from 1 (strongly disagree) to 5 (strongly agree). Internal consistency was found to be α=.92.

Role Conflict was measured using all five items adapted from the Pettegrew and Wolf (1982) 'Teacher Stress Scale'. Item two of this scale was adapted to the New Zealand sample by changing the word 'buck' to 'ignore', and, to ensure consistency with the remainder of the instrument, a five-point scale from 1 (strongly disagree) to 5 (strongly agree) was used instead of a six-point scale. A sample item includes, "I receive conflicting demands from two or more people or groups in the school setting". The reliability of this scale was α=.82.

Role Overload was measured using five role overload items adapted from the 'Cross-cultural role conflict, ambiguity, and overload scale' (Peterson et al., 1995). Items two and three were slightly reworded to reflect the realities of role overload in a school setting, for example "I feel overburdened in my roles at school (e.g., teaching, administration work)". Participants were asked provide responses on a five-point scale ranging from 1 (strongly disagree) to 5 (strongly agree). Example items include: "there is

need to reduce some parts of my role" and "my workload is too heavy". For this study, a high internal consistency was also obtained, with an alpha of .90.

The 'Maslach Burnout Inventory Educators Survey' (MBI-ES, Maslach et al., 1996) was utilised to measure the two core burnout dimensions, *emotional exhaustion* and *cynicism*. The emotional exhaustion subscale consists of 9 items (e.g., "I feel emotionally drained from my work"), and the cynicism subscale consists of 5 items (e.g., "I feel I treat some students as if they were impersonal objects"). Participants were asked to rate how frequently they experienced feelings associated with each item, ranging from 1 (never) to 7 (daily). Reliability studies show internal consistency of the *emotional exhaustion* scale ranging from α= 0.88 to α=.90 (Whitehead, Ryba & O'Driscoll, 2000). In this study, principal axis factoring revealed that the emotional exhaustion scale had a two-factor structure, with the item "working with people directly puts too much stress on me" loading strongly on a second factor. This item was removed, resulting in the expected single-factor structure and an alpha of .90. For the cynicism scale, reliability studies show internal consistency ranging from α= .74 to α= .79 (Whitehead et al., 2000). For this study, all items in the *cynicism* scale loaded on a single factor, and an alpha of .86 was obtained.

Turnover Intention was measured using all three items from the Sjöberg & Sverke (2000) 'Turnover Intention' scale, including the statements: "I am actively looking for other jobs", "I feel I could leave this job" and "If I was completely free to choose I would leave this job". Participants were asked provide responses on a five-point scale ranging from 1 (strongly disagree) to 5 (strongly agree). Higher scores indicate a stronger intent to leave employment. This study obtained an internal consistency of α =.83.

Results

Descriptive statistics and correlations between the independent variables, mediators, the dependent variable, and covariates are depicted in Table 1. Of note, the mean level of cynicism scores was low (*M*=2.08,

SD=1.32), while emotional exhaustion was above the midpoint of the MBI 7-point scale (*M*=4.01, *SD*=1.33). Personal disaster impact was positively and significantly related with *emotional exhaustion* (*r*=.24, *p*<.05), but not with *cynicism* (*r*=.03, ns). *Emotional exhaustion* and *cynicism* were positively and significantly related with *school disaster impact* (*r*=.18, *p*<.05 and *r*=.25, *p*<.01 respectively). Additionally, *perceived school disaster responsiveness* was negatively and significantly associated with *emotional exhaustion* (*r*=-.44, *p*<.01) and *cynicism* (*r*=.-43, *p*<.01). The role stressors, *role conflict* and *role overload* were also found to have significant relationships with *emotional exhaustion* (*r*=.56, *p*<.01 and *r*=.65, *p*<.01 respectively) and *cynicism* (*r*=.47, *p*<.01 and *r*=.24, *p*<.01 respectively). Finally, the burnout dimensions of *emotional exhaustion* and *cynicism* were positively and significantly correlated with *turnover intentions*, (*r*=.40, *p*<.01 and *r*=.39, *p*<.01 respectively).

To test the hypotheses advanced in this study, a mediation analysis was conducted using Hayes and Preacher's (2011) MEDIATE Macro for SPSS (http://www.afhayes.com/spss-sas-and-mplus-macros-and-code.html). MEDIATE conducts mediation analyses that can accommodate for multiple independent variables, mediators, and covariates simultaneously, providing unstandardized coefficients. For this study, *turnover intentions* was entered as a dependent variable; *perceived school disaster responsiveness, school disaster impact, personal disaster impact, role conflict* and *role overload* were entered as independent variables; and *emotional exhaustion* and *cynicism* were tested as mediators. Based on previous research suggesting significant relationships between personal/occupational characteristics and burnout, *gender* and *teaching-level* were entered into the analyses as covariates. Analyses of indirect effects were tested using bias-corrected bootstrap confidence intervals (95 percent), utilising 10,000 samples. Indirect effects were considered to be significant if the confidence intervals did not include zero. A full table of the mediation results is presented in Table 2, and a summary of findings in Figure 2.

Table 1: Means, Standard Deviations, Internal Consistencies, and Correlations Between the Study variables

Variable	Mean	SD	1	2	3	4	5	6	7	8	9	10	11
1. Age	44.93	11.87	-										
2. Gender	-	-	.01	-									
3. Level	-	-	.13	-.20*	-								
4. PDI	2.33	.83	-.03	.12	.04	(.79)							
5. SDI	2.51	1.04	.03	-.10	.21*	.28**	(.88)						
6. SDR	3.65	.99	-.08	.21*	-.30**	-.16	-.17	(.91)					
7. RC	2.66	.86	-.12	-.16	.20*	.18	.19*	-.60**	(.82)				
8. RO	3.16	.92	-.06	-.02	.15	.23*	.17	-.45**	.65**	(.90)			
9. EE	4.01	1.33	-.00	.06	.09	.24*	.18*	-.44**	.56**	.65**	(.90)		
10. CYN	2.08	1.32	-.01	-.27**	.14	.03	.25**	-.43**	.47**	.24**	.55**	(.86)	
11. TI	2.57	1.24	.12	-.03	-.09	.23*	.16	-.45**	.39**	.28**	.40**	.39**	(.83)

Note: N=125; PDI= Personal disaster impact; SDI= School disaster impact; SDR= School Disaster Responsiveness; RC= Role Conflict; RO= Role overload; EE=Emotional Exhaustion; CYN= Cynicism; TI= Turnover Intention; * $p< .05$, ** $p< .01$

Firstly, the direct effects of the independent variables on *emotional exhaustion* and *cynicism* were analysed. As seen in Figure 2, results for the independent variables' unique contribution to *emotional exhaustion* support only hypothesis 5a, indicating that *role overload* had a direct effect on *emotional exhaustion* (b=.41, $p<.01$), where high role overload was associated with greater emotional exhaustion. It should be noted that, although the relationship between role conflict and emotional exhaustion was not significant at the $p<.05$ significance criterion, the magnitude of the effect obtained also suggests that role conflict is associated with greater emotional exhaustion (b=.21, p=.06). In contrast, none of the disaster related variables had a direct effect on *emotional exhaustion*. With respect to *cynicism*, *high role conflict* was significantly associated with greater levels of cynicism (b=.46, $p<.01$), in support of hypothesis 4b. Though not significant, the association between *cynicism* and *role overload* is also noteworthy given the magnitude of the effect (b=.20, p=.09). Importantly, *perceived school disaster responsiveness* and *school disaster impact* had a significant direct effect on teachers' reported *cynicism* (b=-.26, $p<.05$, and b=.19, $p<.05$, respectively), substantiating hypotheses 2b and 3b.

Finally, and consistent with hypothesis 6e, *emotional exhaustion* acted as a mediator, but only for the relationship between *role overload* and *turnover intentions*. Consistent with hypothesis 6e, *role overload* impacted *turnover intentions* through *emotional exhaustion* (b = .12, 95%CI [.09, .28]). These findings support a full mediation model, in the expected direction, whereby high role overload is related to increased emotional exhaustion, which in turn is related to higher turnover intention. In contrast, *cynicism* was not found to be a mediator for any of the independent variables, failing to support hypothesis 7.

Table 2: Direct, Indirect and Total Effects of Emotional Exhaustion and Cynicism

Dependent Variable: Turnover Intentions

	MED 1: Emotional Exhaustion Direct effects a¹ path	MED 2: Cynicism Direct effects a² path	Total effect C	Direct effects c' and b path	MED 1: Emotional Exhaustion Indirect effect a¹b¹ path	CI indirect effect[a]		MED 2: Cynicism Indirect effect a²b² path	CI indirect effect[a]	
	Estimate (se)	Estimate (se)	Estimate (se)	Estimate (se)	Estimate (se)	LLCI	ULCI	Estimate (se)	LLCI	ULCI
Constant	.034 (.075)	.083 (.084)	-.008 (.089)	-.027 (.086)						
SDR	-.19 (.106)	-.259** (.120)	-.267* (.126)	-.182 (.124)	-.056 (.039)	-.145	.007	-.029 (.038)	-.120	.037
SDI	.096 (.082)	.186* (.093)	.059 (.098)	.009 (.096)	.029 (.030)	-.024	.098	.021 (.027)	-.030	.084
PDI	.012 (.080)	-.101 (.090)	.070 (.095)	.077 (.092)	.004 (.028)	-.045	.068	-.011 (.020)	-.053	.034
RC	.212 (.112)	.460** (.127)	.157 (.137)	.043 (.137)	.064 (.048)	-.008	.171	.051 (.058)	-.051	.179
RO	.412** (.102)	-.196 (.115)	.078 (.122)	-.024 (.138)	.124 (.068)	.008	.276	-.022 (.030)	-.099	.020
Gender	.184* (.080)	-.101 (.090)	.055 (.095)	-.011 (.097)						
Level	-.065 (.082)	-.085 (.092)	-.035 (.097)	-.006 (.094)						
EE (b¹ path)				.300* (.141)						
CYN (b² path)				.111 (.125)						
Adj R²	.466**	.305**	.158**	.228**						

Note: N=125; SDR= School disaster responsiveness; SDI= School disaster impact; PDI= Personal disaster impact; RC= Role conflict; RO= Role overload;

EE= Emotional exhaustion; CYN= Cynicism. [a] 95% bias corrected confidence intervals; LLCI – Lower Limit of 95% Confidence Interval; ULCI – Upper Limit of 95% Confidence Interval; 10000 bootstrap samples; *p<.05, **p<.01.

Figure 2. Direct Effects in the Teacher Burnout Model (*b* regression coefficients).
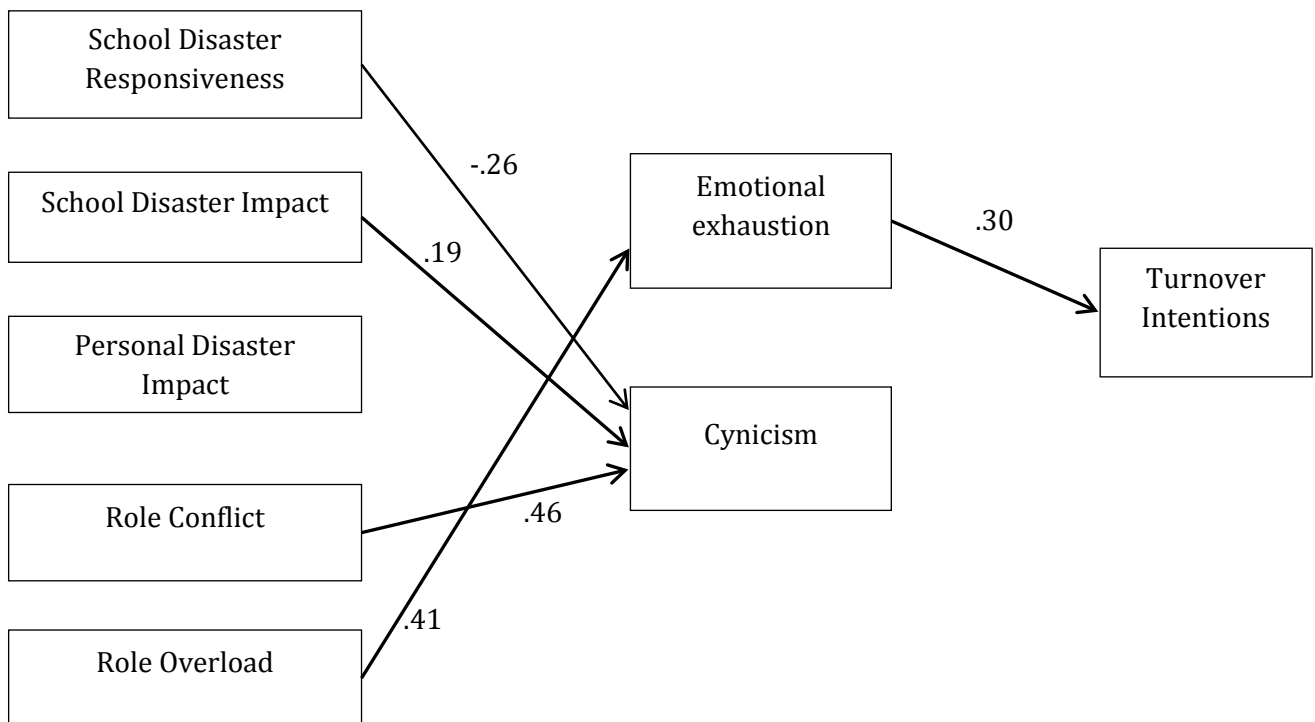
Significant results at p<.05 are included in bold arrows

Note: gender and teaching-level are entered as covariates

Discussion

Summary of Findings

This study aimed to investigate teachers' perceptions and workplace attitudes in the aftermath of the Christchurch earthquakes. A Burnout Model was proposed, wherein the relationships between three disaster-related antecedents (*personal disaster impact, school disaster impact and perceived school disaster responsiveness*), two role-stressors (*role conflict* and *role overload*), and turnover intentions were mediated by burnout (*emotional exhaustion* and *cynicism*).

The findings indicate that disaster-related variables played an important role in the burnout dimension of cynicism. Negative perceptions of support for teaching staff and change to safety procedures after a disaster (perceived school disaster responsiveness) were accompanied by negative attitudes towards the job and the profession. This parallels previous research findings suggesting that, under stable environments, school support contributes to lower burnout levels among teachers (Demerouti et al., 2001; Leithwood, Menzies, Jantzi, & Leithwood, 1996; Skaalvik & Skaalvik, 2009), and that support from the organisation is crucial to foster employee engagement in a disaster context (Nilakant & Walker, 2012). Furthermore, the extent to which schools were damaged or otherwise affected by the earthquakes also contributed to teacher disengagement toward job.

Regarding the role stressors, role conflict and overload were associated with an increase in burnout feelings. These findings are consistent with research showing the negative impact of role-related stress on burnout (Alarcon, 2011; Lee & Ashforth, 1996; Maslach et al., 2001; Schwab & Iwanicki, 1982). While role overload was strongly related to higher levels of emotional exhaustion when other variables were controlled for, it did not significantly impact cynicism; whereas role conflict had a particularly strong effect on reported cynicism. This replicates past research recognizing role overload chiefly as a predictor of emotional exhaustion (Maslach et al., 2001; Leiter & Maslach,

2009), and role conflict as a precursor to cynicism in a teaching population (Dorman, 2003).

In regards to the outcome variable, high levels of emotional exhaustion were associated with teachers' intentions to leave their school. These findings parallel past research highlighting psychological and physical withdrawal from work as consequences of burnout (Swider & Zimmerman, 2010), and are particularly interesting, given that survival biases and range restriction could have undermined the relationship between burnout and turnover intentions. In practice, as data for this study were collected over a year after the main disaster, some teachers may have already left the schools, and those that have remained may be (or have become) more resilient (less susceptible to burnout), therefore less likely to report intent to leave their place of work.

Despite existing research suggesting that cynicism mediates the relationship between specific occupational variables (i.e., person-job incongruences in workload, control, and reward) and turnover intentions (Leiter & Maslach,

2009), cynicism did not emerge as a significant mediator in this study. The lack of significant results found may reflect characteristics of the teaching sample used, namely the low levels of cynicism reported in this group. It should also be noted that the changes to Christchurch schools initiated at the time data for this study were collected (i.e., schools merging or shutting down, resulting in downsized teaching positions) may also be responsible for the responses provided to turnover items, indicating participants' perceptions that they will have to leave the school and/or the profession.

Overall, the findings suggest that both role stressors and disaster-related antecedents played an important part in the aetiology of burnout. Although burnout has not been studied in a post-disaster work context, the effect sizes found for role overload and disaster antecedents consistent with literature highlighting the importance of job context in burnout (Maslach et al., 2001).

Limitations and Directions for Future Research

Although this study has revealed interesting and novel findings regarding burnout in a post-disaster context, there are some limitations that must be acknowledged. The first limitation concerns the cross-sectional nature of the study. Firstly, as discussed above, disaster-related stressors may be particularly salient in the initial period after the disaster, whereas work-related problems and the experience of burnout may be more prominent at a later stage, as a result of prolonged exposure to the stressor and growing demands to respond to new and often competing job requirements. As the present study only captured data at one specific point in time, several months (18) after the earthquakes, and called for participants' recall of school responsiveness and disaster impact, memory and other relevant effects may be underestimating the relationship between disaster variables and burnout in some respondents, and overestimating it for others. Regarding the latter, as negative events tend to prompt increased cognitive elaboration, these events will become salient and be recalled more easily (Poncheri, Lindberg, Thompson & Surface, 2008).

The cross-sectional nature of this study also limits claims of causality and directionality. Reverse causality is plausible, as teachers feeling burnt out may be likely to perceive that their schools responded poorly to the earthquake, or experience heightened role stressors. These directionality issues and time-sensitive findings need further exploration, utilising longitudinal research designs, in order to more closely determine the development of burnout over time in a disaster context.

A second limitation in this study concerns sample issues, such as sample size and sampling procedures. While the sample size of 125 was adequate for detecting statistical significant correlations, power issues may have limited the identification of significant effects in the Burnout Model. Additionally, teachers self-selected for this study from a large pool of schools, their representativeness impossible to ascertain from the anonymous survey method, which may have influenced the results. As participation was voluntary and anonymous, teachers experiencing less stress and greater availability, or alternatively teachers that were stressed and wanted to make a grievance, may have been draw to the study.

A final limitation of this study regards the generalisation of findings to different post-disaster contexts. Disasters can occur in different forms (e.g., natural or non-natural) and with differing severities and magnitudes, eliciting different stress responses. In the present study, Christchurch had experienced two particularly damaging earthquakes, and thousands of aftershocks. As this is the first study to explore burnout correlates within a disaster context, it would be interesting for future research to investigate whether the findings were unique to the Christchurch earthquake, or generalizable to other disaster contexts.

Further research is needed to examine the specific disaster responses from schools that teachers perceived as effective. Although past research has indicated examples of appropriate disaster response (Byron & Peterson, 2002; Nilakant & Walker, 2012), there is little empirical research to inform how schools can cope in a

disaster environment and mitigate teacher, and by extension, student stress. Therefore, future studies could identify specific policies, practices, and supportive measures associated with positive teacher perceptions and teacher wellbeing in a post-disaster environment.

Another interesting avenue for future disaster research is to investigate employee engagement within a disaster environment. Engagement is considered a positive work-related outcome, in which employees experience work as stimulating, meaningful, and engrossing (Bakker & Demerouti, 2008; Schaufeli, Salanova, Gonzalez-Roma, & Bakker, 2002). While qualitative research has already highlighted the relationships between engagement and disaster exposure (Wang et al., 2011; Nilakant & Walker, 2012), to date no quantitative studies have explored engagement within a post-disaster context. Hence, future research would benefit from exploring engagement, in addition to burnout, to advance a more comprehensive and balanced view of employee perceptions after disasters.

Practical Applications

The present study is one of the first to explore individual and organisational antecedents of burnout, along with turnover intentions, within a disaster context, and thus has proposed novel theoretical and practical implications. Of theoretical import, burnout was found to be associated with disaster variables, namely the perceived quality of school disaster responsiveness, and the impact of the disaster on school infrastructure and teaching provision. In addition, role stressors – conflict and overload – contributed to greater experience of cynicism and emotional exhaustion, respectively.

That the disaster and role effects were significant and particularly salient with respect to cynicism is noteworthy, given that the teachers surveyed reported relatively low levels of this burnout dimension. Together with recent research suggesting that burnout tends to increase over time in stable environments (Pas, Bradshaw, & Hershfeldt, 2012), there is reason to believe that failure to address issues pertaining to role pressure and changes to school support systems and

procedures – significant precursors to cynicism – may yet contribute to greater feelings of cynicism among teachers. In addition, the strength of the relationship between increased workload and emotional exhaustion, the relatively high means obtained for this burnout dimension, and its significant link with turnover intentions, underscore the immediate risk of teacher attrition in local schools, unable to respond to work demands with the depleted resources available. The onus is therefore placed on organisations to manage their job requirements and support systems available in a disaster context. The fact that the teachers still reported moderate levels of turnover intentions 18 months after the major earthquakes took place is indicative of the need to implement supportive strategies to mitigate feelings of emotional exhaustion, and restore higher levels of engagement with the school and the professional. Turnover levels affect not only the financial viability of schools, with the cost of a single instance of teacher turnover reaching thousands of dollars, but also school performance through its impact on coworker morale and workload increase (Barnes, Crowe & Schaefer, 2007; Pas et al., 2012).

A recent review has shown that while organisational interventions contribute to the reduction of employee burnout, they are rarely implemented in practice (Awa, Plaumann & Walter, 2008). Awa et al. (2008) found that organisational-level burnout interventions (i.e., aimed at restructuring work processes to reduce job demands such as workload and conflict) integrated with person-focused interventions, were the most effective in reducing burnout in the long term. The results of the present study suggest that schools need to acknowledge the significance of role conflict and role overload in the development of teacher stress and burnout, especially when the school infrastructure and the students' families are affected by the disaster. While the complete elimination of role-related problems within organisations is unrealistic, role conflict can be mitigated if schools establish clear lines of authority and job descriptions consistent with the new demands, involve teachers in goal-setting and recovery strategies, and relevant training programs (Pas et

al., 2012). In this study, participants suggested additional measures to reduce role demands, namely time off from work to sort personal matters (e.g., housing), increased support from government agencies to provide counselling for staff and students, and improved communication systems in the school to facilitate workflow and relationships between teachers and the management team.

This study has also highlighted the importance of school responsiveness to disasters. In the initial aftermath, organisations need to adopt practices that ensure that their employees' basic human needs are met, namely contacting employees to determine their safety and that of their family, providing food and water to employees, assuring employees that buildings are safe, and developing evacuation procedures (Nilakant & Walker, 2012). Importantly, even after the initial crisis phase, organisations need to be aware of their employees' changing needs, and continue to provide support and assistance. The immediate and short-term nature of the support initiatives put in place, and absence of a long-term plan to address enduring challenges in the schools, were noted by the teachers as a pervasive and critical gap in the recovery process, and a factor contributing to ongoing and rising stress levels.

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