

# Burnout and Wellbeing: Testing the Copenhagen Burnout Inventory in New Zealand Teachers

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Accepted: 3 December 2007 / Published online: 25 December 2007  
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**Abstract** The Copenhagen Burnout Inventory (CBI) is a public domain questionnaire measuring the degree of physical and psychological fatigue experienced in three sub-dimensions of burnout: personal, work-related, and client-related burnout. This study first examines the reliability and validity of the CBI in measuring burnout in New Zealand secondary school teachers, and then the relationship between burnout and wellbeing among this population. The CBI had acceptable reliability (internal consistency and homogeneity) as well as factorial and criterion-related validity. As expected, burnout was negatively related to wellbeing measures (wellbeing index, school connection, and perceived general health). The findings indicate that this burnout questionnaire is a valid instrument to use with New Zealand secondary teachers, and also highlight the potential impact of burnout on the health and wellbeing of teachers.

**Keywords** Burnout · Wellbeing · Copenhagen Burnout Inventory · Secondary school teachers · New Zealand · Validity · Reliability

## 1 Introduction

Burnout can be defined as a syndrome of psychological problems experienced as a result of chronic work stress. Since Freudenberg's (1974) and Maslach's (1976) pioneering work, burnout has become a major topic of research throughout the world. A search of the Social Science Citation Index shows, for example, that burnout has been investigated in more than

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4,500 studies. However, although work stress has been linked to lower levels of wellbeing (Cotton 2003; Levi 1995), few studies have empirically examined the association between burnout and wellbeing (Burke and Mikkelsen 2006; Levesque et al. 2004). The present study addresses this gap by first examining the reliability and validity of a new burnout measure, and then examining the link between burnout and wellbeing among New Zealand secondary school teachers.

## 2 Teacher Burnout and Wellbeing

Teaching is regarded as a highly stressful occupation. Supporting this, several studies have shown high levels of stress and burnout experienced by teachers (see e.g., Cunningham 1983; Kyriacou 1987, 2001; Kyriacou and Sutcliffe 1977; Salo 1995; Seidman and Zager 1991). Teacher burnout was found to be influenced by such variables as job satisfaction (Kantas and Vassilaki 1997), poor working conditions and time pressures (Abel and Sewell 1999), work–family conflicts (Cinamon et al. 2007), and school type and amount of time worked (Bauer et al. 2007). Studies have also shown that burnout is higher among teachers who perceived their job as highly demanding and low in control (Santavirta et al. 2007), and for urban compared with rural school teachers (Abel and Sewell 1999). Research regarding potential sex differences in the experience of teacher burnout has yielded mixed results, with some studies suggesting that female teachers experience more burnout (Lau et al. 2005; Timms et al. 2006), while others indicating the converse (Bauer et al. 2007).

Moreover, research has shown that many teachers suffer from mental health problems and emotional exhaustion (Bauer et al. 2007; Naring et al. 2006). It seems clear that the levels of stress and burnout experienced by teachers are related to these health and psychological problems. Therefore, a negative association between burnout and wellbeing measures is expected, and some empirical findings support this expectation. For example, burnout was found to be negatively associated to life satisfaction (Lavanchy et al. 2004; Levesque et al. 2004). A greater level of understanding about teacher burnout can consequently inform efforts to enhance positive outcomes on the health and wellbeing of school teachers.

## 3 Measuring Burnout

The Maslach Burnout Inventory (Maslach and Jackson 1986) is the most widely used instrument to measure burnout; however, several methodological and conceptual problems regarding this inventory have been noted. Specifically, its items are limited to people-oriented occupations; there are limitations regarding the definition and measurement of burnout, and understandability of the items across cultural groups; two dimensions measured by this instrument (i.e., depersonalisation and personal accomplishment) do not pertain to the burnout syndrome; and it is owned by a commercial company so that researchers have to pay for its use (Halbesleben and Demerouti 2005; Kristensen et al. 2005). Critics have therefore advocated for the development of alternative burnout measures (see e.g., Cox et al. 2005; Halbesleben and Demerouti 2005).

The Copenhagen Burnout Inventory (CBI) is a new, public domain burnout questionnaire that was designed to overcome the limitations outlined above. The CBI was developed as part of the PUMA study investigating burnout among human service workers

in Copenhagen (Kristensen et al. 2005). The CBI is a 19-item questionnaire measuring three burnout sub-dimensions. The *personal burnout* scale has six items and measures the degree of physical and psychological fatigue and exhaustion experienced by a person regardless of their participation in the workforce (i.e., a generic burnout scale). The *work-related burnout* scale has seven items and measures the degree of physical and psychological fatigue related to work. The *client-related burnout* scale has six items and measures the degree of physical and psychological fatigue experienced by people who work with clients. These three scales have shown good reliability and criterion-related validity in studies conducted in Danish and Australian samples (Kristensen et al. 2005; Winwood and Winefield 2004). In these populations, the three burnout sub-dimensions were negatively correlated with vitality, mental and general health, job satisfaction, sickness days, sickness spells, sleep problems, use of pain-killers, intention to quit the workplace, and absenteeism.

Kristensen et al. (2005) argue that the validity of the CBI should be tested in different cultures. Researchers have attempted to extend the utility of the measure in an international context by translating it to more than eight languages (Kristensen et al. 2005), and using it in different countries, such as with Japanese (Odagiri et al. 2004) and Australian samples (Biggs and Brough 2006; Winwood and Winefield 2004). The CBI has also been tested in more than 15 occupations, such as prison wards (Kristensen et al. 2005) and dentists (Winwood and Winefield 2004), but has not yet been tested with teachers.

## 4 The Present Study

This study is part of a broader project investigating the health and wellbeing of secondary school students in New Zealand conducted by the Adolescent Health Research Group (<http://www.youth2000.ac.nz>). Youth2007 is New Zealand's largest and most comprehensive youth health survey and follows on from Youth2000 with the aim to collect, analyse and disseminate accurate and comprehensive information on the health and wellbeing of New Zealand youth (Watson et al. 2003). Given the importance of school environment variables, Youth2007 will also examine the link between the school environment and the health and wellbeing of both staff and students. This paper reports the results from a comprehensive pilot study leading up to the Youth2007 School Environment Survey. The specific aim of this study was to examine the reliability and validity of the CBI in a sample of secondary school teachers in New Zealand. We specifically examined the internal consistency and homogeneity of the CBI, its criterion-related validity with respect to the expected negative correlation between burnout and wellbeing, and construct validity as assessed by factor analysis. There is currently no published literature regarding the psychometric properties of the CBI in this context, culture or professional group.

## 5 Method

### 5.1 Participants

A total of 129 teachers from three secondary schools participated in this study. Their ages ranged from 20 to 85 ( $M$  and Median = 41,  $SD = 12.2$ ), and 73% were female. At the time of the survey, the teachers had been working at their school from 1 month to 56 years (Median = 3 years).

## 5.2 Instruments

The Youth2007 Teachers Survey included questions about school climate, general health and wellbeing, socio-demographic information, and the measures described below.

### 5.2.1 Copenhagen Burnout Inventory (CBI)

This 19-item inventory measures three sub-dimensions of burnout: personal (six items; e.g., “How often do you feel tired?”; “How often do you feel worn out?”), work-related (seven items; e.g., “Do you feel burnt out because of your work?”; “Do you feel worn out at the end of the working day?”), and student-related (six items; e.g., “Do you find it hard to work with students?”; “Are you tired of working with clients?”). All burnout items were shown together, but items from each sub-dimension intermixed. In this study, responses were made on a 5-point scale ranging from 1 (*always*) to 5 (*never/almost never*). The scale labels were then re-coded to the original format labels of 100 (*always*), 75, 50, 25, and 0 (*never/almost never*), so that higher scores indicate more burnout. None of the participants was classified as a non-responder; that is, no participants responded to less than three items in the personal and student-related burnout scales, and to less than four items in the work-related burnout scale (Kristensen et al. 2005).

### 5.2.2 WHO (five) Well-Being Index

This measure comprises five statements regarding wellbeing during the last 2 weeks (e.g., “I have felt cheerful and in good spirits”; “I woke up feeling fresh and rested”). Responses are made on a 6-point scale, ranging from 0 (*at no time*) to 5 (*all of the time*), and higher scores indicate greater levels of wellbeing (WHO 1998).

### 5.2.3 Single Self-Report Items

Two single self-report items were used to measure connection to school (on a 5-point scale anchored by *I like this school a lot* and *I dislike this school a lot*), and perceived general health (on a 5-point scale anchored by *excellent* and *poor*). These items were reversed scored so that higher scores indicate higher school connection and better perceived health. These items were also considered as wellbeing indicators.

## 5.3 Procedure and Data Analyses

Ethical approval was received from the University of Auckland Human subject ethics committee.

Full time teachers from the participating schools were invited to complete the Youth2007 Teachers Survey that was administered during staff meetings. The teachers were informed about the objectives, anonymity and confidentiality of the survey. The reliability of the CBI was examined specifically in relation to the instrument’s internal consistency (Cronbach’s alpha coefficients) and homogeneity (mean inter-item correlations) (Briggs and Cheek 1986). Cronbach’s alpha coefficients of .70 or higher and mean

inter-item correlations in the .20–.40 range were deemed to indicate good reliability (Clark and Watson 1995; Nunnally 1978). Criterion-related validity was assessed by examining the correlations of the burnout scores with wellbeing, school connection, and perceived general health.

Confirmatory factor analyses were performed using LISREL and maximum-likelihood estimation procedures, taking the observed covariance matrix as the input. This procedure would thus test for the construct validity of the CBI. Given that no such information has been previously reported for this measure, separate confirmatory factor analyses were first performed for each of the three sub-dimensions of burnout, and then the proposed three-factor structure of the CBI was tested. Prior to these analyses, multiple imputation using the EM algorithm (Jöreskog and Sörbom 1996) was conducted to replace isolated missing values. The degree to which the data fit the confirmatory models were assessed using the ratio of the chi-square statistic to the degrees of freedom ( $\chi^2/df$ ), the comparative fit index (CFI), the root mean square error of approximation (RMSEA), and the standardized root mean square residual (SRMR). Models with a  $\chi^2/df$  ratio in the range of 2–3, and CFI, RMSEA and SRMR with values respectively close to .95, .06 and .08 or better indicate acceptable fit (Carmines and McIver 1981; Hu and Bentler 1999).

## 6 Results

### 6.1 Response Rate, Descriptive Statistics and Reliability

There were 205 full-time teachers across the three schools at the time of the survey. Thus, the final sample indicates a response rate of 62.9%. The burnout scores for the New Zealand school teachers as well as the Cronbach's alphas and mean inter-item correlations of all measures are reported in Table 1. The Cronbach's alphas were higher than the recommended level of .70 and the inter-item correlations were greater than .40, indicating acceptable internal consistency and homogeneity. The high intercorrelations (average of .79) indicate considerable dependency between the three burnout scales, supporting combining the items of the inventory to compute a general burnout score.

**Table 1** Descriptive statistics, reliability, intercorrelations, and partial correlations of the Copenhagen Burnout Inventory

	Score	SD	$\alpha$	<i>Mr</i>	1	2	3	4	5	6
1. Personal burnout	43.0	17.7	.87	.52	–					
2. Work-related burnout	41.5	18.3	.87	.50	.87***	–				
3. Student-related burnout	40.4	16.3	.79	.40	.75***	.75***	–			
4. General burnout	41.9	16.5	.94	.46	.94***	.94***	.90***	–		
5. Wellbeing index	9.7	4.8	.85	.55	–.66***	–.64***	–.49***	–.64***	–	
6. School connection	1.8	.81	NA	NA	–.33***	–.40***	–.30**	–.37***	.29**	–
7. Perceived general health	2.3	.80	NA	NA	–.52***	–.43***	–.35***	–.47***	.46***	.24*

\*  $p < .05$ . \*\*  $p < .01$ . \*\*\*  $p < .001$

*Note:*  $N = 129$ .  $N$  refers to the sample size. Possible score range for the burnout scales is 0–100, for the wellbeing scale is 5–25, and for the other two scales is 1–5. Correlations were performed with age and sex being controlled for. A = Cronbach's alphas; *Mr* = mean inter-item correlations; NA = not applicable (single item)

**Table 2** Fit indices for the Copenhagen Burnout Inventory

Model	$\chi^2$	df	$\chi^2/df$	CFI	RMSEA (90%CI)	SRMR
<i>Simple models</i>						
1. Personal burnout	22.69	9	2.52	.97	.11 (.054; .17)	.052
2. Work-related burnout	19.97	14	1.43	.99	.058 (.00; .11)	.042
3. Student-related burnout	10.58	9	1.18	.99	.037 (.00; .11)	.038
4. Three-factor burnout model	360.55	149	2.42	.96	.011 (.092; .12)	.067
<i>Hierarchical model</i>						
5. Higher order burnout factor	360.56	149	2.42	.96	.11 (.092; .12)	.067

Note:  $N = 129$ .  $N$  refers to the sample size. All  $\chi^2$  statistics for Models 1 and 4 are significant at  $p < .001$ .  $\chi^2/df$  = the ratio of chi-square to degrees of freedom; CFI = comparative fit index; RMSEA = root mean square error of approximation; 90%CI = 90 percent confidence interval; SRMR = standardized root mean square residual

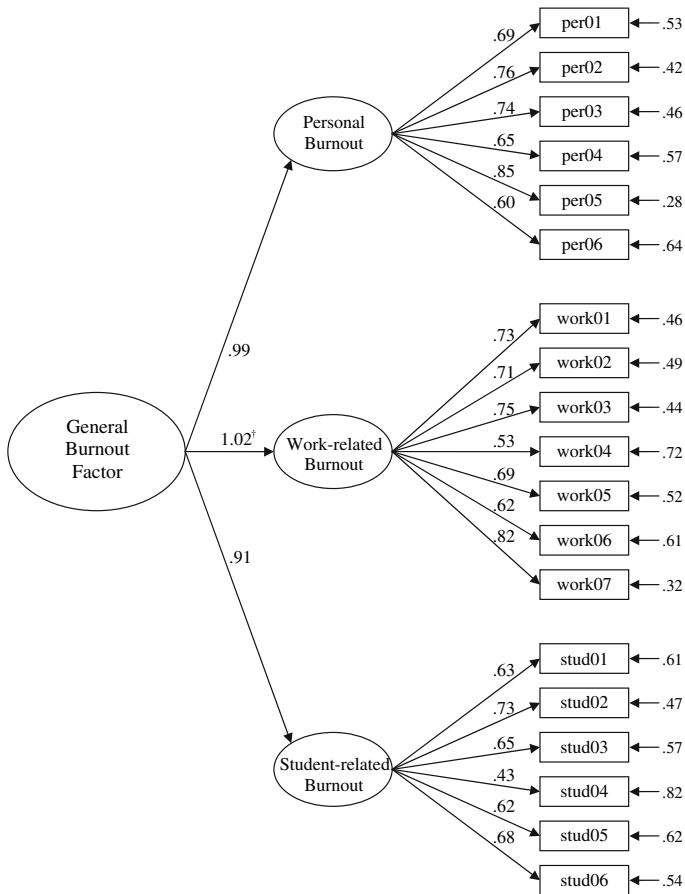
## 6.2 Construct Validity

The confirmatory models for each of the three burnout sub-dimensions separately had acceptable fit (see Table 2). All loadings were significant ( $p < .05$ ) and high—ranging from .58 (item 4) to .78 (item 2; Mean = .71) for personal burnout; .53 (item 4) to .85 (item 7; Mean = .69) for work-related burnout; and .43 (item 4) to .75 (item 3; Mean = .63) for student-related burnout. A correlated three-factor model was also tested in which the CBI items load on their respective latent factor, and the three latent factors were allowed to correlate. This model also had acceptable fit, and the three latent factors were highly correlated: personal burnout correlated 1.01<sup>1</sup> and .90 with work-related and student-related burnout, respectively, while the latter two factors correlated .94. These substantial correlations between the burnout sub-dimensions indicate the possibility of a general, higher order burnout factor. A higher order factor model was then tested, in which a general higher order burnout factor explains the covariance among the three first-order burnout factors. This higher order burnout model also had acceptable fit, and all loadings were high and significant (see Fig. 1). These findings indicate the construct validity of each of the burnout scales, and also the possibility of having a general burnout factor.

## 6.3 Criterion-related Validity

Some age and sex differences were found regarding the measures used. Being younger correlated positively with personal burnout ( $r = .23$ ,  $p < .05$ ) and negatively with well-being ( $r = -.24$ ,  $p < .01$ ). Being male correlated positively with personal ( $r = .24$ ,  $p < .01$ ), work-related ( $r = .24$ ,  $p < .01$ ) and general burnout ( $r = .22$ ,  $p < .05$ ), and negatively with wellbeing ( $r = -.23$ ,  $p < .01$ ). Time at school was also considered as a potential confounder but did not correlate significantly with the burnout and wellbeing

<sup>1</sup> Standardized coefficients can be larger than 1.0 in magnitude, and may indicate multicollinearity (Jöreskog 1999). This may also indicate that personal and work-related burnout can be combined into a single latent factor. Thus, a two-factor burnout model is possible, in which student-related burnout items load on one factor, while the personal and work-related burnout items load on a second factor. This two-factor model also had acceptable fit to the present data ( $\chi^2 = 365.44$ ;  $df = 151$ ;  $\chi^2/df = 2.42$ ; CFI = .96; RMSEA (90%CI) = .11 (.092–.12) SRMR = .067), and should be further tested in other studies.



**Fig. 1** Standardized coefficients for the higher order model of the Copenhagen Burnout Inventory. *Note:*  $N = 129$ . All coefficients are significant at the 5% level ( $t > 1.96, p < .05$ ). Arrows without origin indicate error terms. Fit indices are reported in Table 2. <sup>†</sup>Standardized coefficients can be larger than 1.0 in magnitude, and may indicate multicollinearity (Jöreskog 1999)

measures, although it was correlated with age ( $r = .42, p < .001$ ). For this reason, partial correlations examining the burnout scales in relation to wellbeing were performed with age and sex being controlled for. In line with predictions, all three burnout sub-dimensions as well as the general burnout score were negatively correlated to the wellbeing index, school connection and perceived health (see Table 1). These correlations were found to be low to moderate in terms of effect size (Cohen 1988; Hemphill 2003).

### 7 Discussion

The present study indicates that the Copenhagen Burnout Inventory (CBI) is a reliable and valid measure to assess burnout in New Zealand secondary school teachers, and that burnout is negatively related to wellbeing. This paper is the first to assess the reliability and construct and criterion-related validity of the CBI in a sample of school teachers, and

among the first to extend the validation of the CBI beyond the original study with Danish samples. These findings support the use and applicability of this public domain measure in broader contexts than originally proposed. Moreover, the findings also addressed a gap in the literature by expanding the nomological network of teacher burnout by relating it to wellbeing measures.

The burnout scores in the present study were above the average scores found by Kristensen et al. (2005). They found average scores of 35.9, 33.0, and 30.9 for personal, work-related and client-related burnout, respectively, across 15 jobs. Midwives had the highest scores for personal (44.7) and work-related (43.5) burnout, and prison wards the highest for client-related burnout (41.2). The high score on the burnout dimensions found for the New Zealand secondary teachers is consistent with other studies showing high levels of stress and burnout among teachers (Cunningham 1983; Kyriacou 1987, 2001; Kyriacou and Sutcliffe 1977; Salo 1995; Seidman and Zager 1991). The negative correlations between the CBI and wellbeing measures also highlight the impact of burnout on the health and wellbeing of teachers. Moreover, the high intercorrelations between the three burnout dimensions as well as the fit found for the second-order factor analysis indicate the possibility of combining the CBI items to form a general burnout score.

The findings need to be considered in light of some limitations. As this is a cross-sectional study, burnout cannot be considered to be causal with respect to the health and wellbeing of teachers. However, the estimated correlations (and their directions) indicate the need to undertake further research to identify the institutional and personal determinants that may underlie the pathways for these adverse associations. Additional research should also investigate the association between the CBI and other more well-established measures of burnout (i.e., Maslach Burnout Inventory) to enhance the validity of the CBI. Notwithstanding these limitations and the relatively small sample size in this study, the findings regarding both the reliability and validity of the instrument and consistency of the results with previous studies support the use of the CBI—a free of charge instrument—to assess burnout among New Zealand secondary school teachers.

**Acknowledgements** This research is funded by the Health Research Council of New Zealand (grant 05/216), the Department of Labour, Families Commission, Accident Compensation Corporation, Sport and Recreation New Zealand, the Alcohol Advisory Council of New Zealand and the Ministries of Youth Development, Justice and Health. We thank the participating teachers and schools for their contributions to this study.

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