

## Are lay theories of work stress related to distress? A longitudinal study in the British workforce

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The potential stressfulness of an event may depend on how it is appraised by the individual, although up to now there have been no longitudinal studies on the relationship between lay beliefs concerning work stress and perceived strain. This longitudinal study examines how lay theories of work stress at baseline were related to perceived mental strain at follow up. The present paper builds on an earlier study (Furnham, 1997), using a longitudinal design and a much larger population of the British workforce ( $N = 2270$ ). Lay beliefs were assessed by a scale consisting of 36 items. Factor analysis gave a solution with five factors on perceived causes and four factors of perceived alleviation of work stress. Linear multiple regression analysis revealed significant relations between lay beliefs of work stress at baseline and perceived mental strain as well as job stress 14 months later. The effect sizes were small but of a similar magnitude to those that have been found, for example, in occupational stress-reducing interventions. A problem with the factor analytic approach was the discrepancies between the factor solutions and the relative importance of the perceived causes of work stress. The results from the study suggest that subjective beliefs about work stress merits further analysis as potentially mediating between 'objective' working conditions and stress outcomes.

### 1. Introduction

While scientific theories in the social sciences offer explicit formal explanations of behavioural phenomena, lay theories are defined as 'the laymen's implicit, informal, "non-scientific" explanation for the same behaviour' (Furnham, 1988, p. 1). Although lay and scientific theories may differ in many ways, they share many similarities and therefore overlap with one another. For example, a great deal of psychotherapy is aimed at changing the dysfunctional beliefs that people have about phenomena that cause them stress and pain.

Lay theories of stress are in many ways closely related to the scientific stress concept, and public awareness about stress parallels its scientific discovery and development (Furnham, 1997; Lewig & Dollard, 2001; Pollock, 1988). Beliefs about stress influence the person's expectations of what causes stress for themselves and for others and could possibly play an

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important role in the aetiology of stress as well as in the process of reporting or failure to report stress (Furnham, 1997; Lewig & Dollard, 2001; Westman, 1996). Furnham (1997, p. 68) argues 'that to some extent lay theories may also act as self-fulfilling prophesy mechanisms, because they shape expectations and resultant behaviour'. Lewig and Dollard (2001) claim that the way stress is perceived and handled in an organizational context is not purely based on scientific understanding but also shaped by social and political factors. From that perspective, lay theories about work stress are to a large extent the outcome of a social construction process. In two repeated studies Parker, Finkel, and Indice (1993) found that lay persons and health professionals held similar and fairly stable beliefs about the relationship between stress and particular health problems.

### 1.1. *The role of beliefs in stress appraisal*

Apart from external conditions, the outcome of the stress process is also affected by an individual's beliefs and attitudes towards those conditions (Hsieh, 2004). Dewe, Cox, & Ferguson (1993) question the assumption that the perceived presence of a potential stressor equates with an individual being under stress, and advises stress researchers to give more attention to the subjective meaning an individual gives to events. They suggest that the potential stressfulness of an event depends on how it is appraised by the individual. In transactional stress models the individual's subjective appraisal of a potential stressor is given a central role in the stress process (Cassidy, 1999; Cohen, Kessler, & Gordon, 1995; Lazarus & Folkman, 1984). According to Lazarus and Folkman (1984, p. 11), 'No environmental element can be identified as a stressor independently of its appraisal by the person'. Lazarus (1993) defines appraisal as the mediating or active negotiating process between the external environment and the goals and the personal beliefs of the individual. Monroe and Kelley (1995, p. 132) hypothesize that the total 'stress level varies as a function of two major components—appraisal and the stressor'. The appraisal process is thought of as influenced by a variety of factors, among them beliefs and attitudes (Lazarus & Folkman, 1984; Lazarus & Lazarus, 1994; Monroe & Kelley, 1995). The subjective perception and appraisal of a potential stressor is also a central component in the Cognitive Activation Theory of Stress—CATS (Ursin & Eriksen, 2002). Even though CATS defines the stress response in physiological terms, an initial subjective perception and appraisal of a state of imbalance is necessary to trigger off the stress response (Ursin & Eriksen, 2002). In other words subjective beliefs are considered to be of importance for appraisal and mediate between the stress exposure and outcome of the stress process.

### 1.2. *Empirical findings on the role of beliefs and subjective meaning in work stress*

Recent studies show that people have elaborate cognitive 'lay models' of the causes of their perceived stress and psychosocial hazards in their work (Daniels, Harris, & Briner, 2002; Muncer, Taylor, Green, & McManus, 2001). In a cross-sectional study Daniels *et al.* (2002) found that working conditions, affective reactions, risk reductions, individual well-being and organizational output were coherently inter-linked. The same study further revealed that these mental models may affect perceived well-being and goal achievement, as well as actual job performance, and that they moderate the relation between perceived exposure to job demands and well-being. Since no longitudinal studies on the relationship between beliefs and perceived strain have been conducted, the potential cause and effect relationship still needs to be explored.

Other studies have also explored the role of perceived meaning in the stress process. Using data from a large sample of the workforce, Payne and Morrison (1999) found that without knowing the meaning for the respondents it cannot be assumed that even frequently-occurring job demands are experienced as being stressful. When the frequency of each job demand was correlated with its perceived stressfulness, only 16 out of the 30 demands listed in the study could be described as stressors. This combined measure gave a more parsimonious prediction of psychological distress from job demands. Furthermore, in a qualitative study of police officers' reaction to acute stressors, Dick (2000) found that the objective severity of the stressor an officer had been exposed to, did not fully predict the outcome of the stress process. Rather, the individual's perceived meaning of the stressor to a large extent determined its long-term consequences (e.g. return to service or early retirement). In a small sample of healthcare workers, Kirkcaldy, Athanasou, & Trimpop (2000) also found perception of work stress and its situational determinants to be highly idiosyncratic.

Despite the recent interest in people's inner models of the stress process and the subjective meaning they give to potential stressors, there are few direct references to the related concept of lay theories or beliefs in the scientific stress literature. This may be explained by a difference in perspectives between the established stress tradition that focuses on identifying 'actual' causes and consequences of stress, and the social psychological perspective in studies of lay theories (Furnham, 1988, 1997). Yet, both traditions are largely based on data from the same source that is the individual respondent's perception and appraisal of stress. Therefore it is important to further study the role of people's beliefs and theories in the stress process.

### 1.3. *The content in lay theories of work stress*

In an earlier questionnaire study on lay theories of work stress (Furnham, 1997), a factor analysis of 27 items aiming to measure the 'causes' of work stress gave a solution with five factors with an eigenvalue greater than one. The factors were named 'conflict and satisfaction', 'career development', 'demographic sub-groups', 'danger and intimidation', and 'authority', respectively. In a similar fashion the factor analysis of 24 items on the alleviation of work stress gave a four factors solution: 'inner control', 'self-help', 'seeking professional help' and 'shame', respectively. A potential problem with that study, clearly recognized by the author, was the relatively small sample ( $n = 140$ ) in relation to the number of items in the factor analyses, which made the reliability of the factor solution somewhat questionable (Furnham, 1997).

The purpose of this longitudinal study is to further analyse the role of lay theories in the stress process. We have used a slightly modified version of Furnham's (1997) questionnaire on lay theories on causes and alleviation of work-related stress. The study comprises two objectives. First, to explore the factor structure of causes and alleviation of work stress in a large sample of the British workforce. The second, more important objective, is to analyse the longitudinal relation between lay theories of work stress and perceived strain.

## 2. Method

### 2.1. *Respondents*

The respondents were all participating in a large longitudinal study, 'The Stress and MSD Study' (Devereux, Rystedt, Kelly, Weston, & Buckle, 2004). In all, 2270 persons from 20 different companies within 11 industrial sectors responded to the baseline questionnaire,

including the lay theories inventory, as well as a follow-up questionnaire 14 months later. The majority of the respondents, 62%, were males, whereas 38% were females. The mean age was about 42 years ( $SD = 9.9$  years) and the mean time in present job in the current organization was about 9.5 years ( $SD = 8.4$  years). The most common occupational groups in the sample (Standard Occupational Classification 2000), were 'Associate professional and technical occupations' (29%), 'Professional occupations' (22%), 'Process, plant and machine operatives' (15%) and 'Administrative and secretarial occupations' (11%). About 72% of the respondents were categorized as having 'white collar' occupations, whereas the remaining 28% held 'blue collar' occupations.

## 2.2. Questionnaire

Included in the baseline questionnaire were 36 items on lay theories of work stress from Furnham's (1997) earlier study; 22 of these items addressed 'causes' of work stress and 14 items addressed 'alleviation' from work stress. These items all had seven response alternatives, ranging from 1 'strongly disagree' to 7 'strongly agree'. In all, five items concerning causes and ten items concerning alleviation used by Furnham (1997) were removed from the present study owing to low factor loading or because of overlapping content with other questions.

The General Health Questionnaire (GHQ12) was used as an indicator of mental strain, with an  $\alpha$  coefficient of .86 (Goldberg & Williams, 1988). A single item from 'The Bristol Stress and Health at Work Study' (Smith, Johal, & Wadsworth, 2000) was used to measure job stress: 'in General, how do you find your job?'. The five response alternatives ranged from 'not at all stressful' to 'extremely stressful'. The properties of this item are extensively reported by Smith *et al.* (2000).

## 3. Results

### 3.1. Results at baseline

For each of the two aspects of lay theories of work stress, 'causes' and 'alleviation', an orthogonal factor analysis with varimax rotation was performed. The sample size satisfied the commonly recommended relation of a 10:1 ratio between respondents and variables for a factor analysis (Hair, Jr., Anderson, Tatham, & Black, 1995). The standard criteria of an eigenvalue greater than 1 was set for extracting factors. All items had factor loadings of greater than .40

3.1.1. 'Causes' of work stress: The factor analysis on 'causes' of work stress yielded five factors with an eigenvalue greater than 1, together accounting for about one-half (49.3%) of the total variance.

The first factor, accounting for 12.1% of the variance, was named Career Development. As shown in table 1, all items with a high loading on this factor concerned work stress in relation to career development and organizational position. The items with a high loading on this factor all had low means despite the relative high contribution to the explained variance.

The second factor, named Conflict and Isolation, accounted for 11.8% of the variance. Items with a high loading on this factor concerned job dissatisfaction and interpersonal conflict or conflicts of ideas. The third factor, Demographic Sub-groups, accounted for 9.9% of the variance. All items with a high loading on this factor concerned female gender or old age as a potential source of work stress.

Table 1. Means and factor loadings from the factor analysis of perceived 'causes' of work stress.

Factor	M	SD	Lo
1. <i>Career development</i> Eigenvalue = 2.66; Var = 12.1% $\alpha = .75$	2.69	1.03	
c7 People who aren't busy or challenged by their work cannot really experience stress	3.14	1.64	.59
c8 Stress only affects people who aren't their own boss i.e. have to take orders from others	2.38	1.44	.73
c9 People who have just had a promotion can't really be stressed	2.32	1.37	.78
c10 People who work for others, or who have to consult colleagues are more stressed because they must constantly follow other people's decisions, routines and ways of working	3.43	1.46	.55
c11 Men in their 40s/50s can't be stressed because most have already developed their careers and have stable positions	2.18	1.34	.70
2. <i>Conflict, Isolation</i> Eigenvalue = 2.60; Var = 11.8% $\alpha = .73$	3.75	1.07	
c1 Stress at work mainly affects people who have to travel frequently or long distances	3.36	1.58	.49
c2 A person is stressed mainly because he/she isn't satisfied with his/her job	4.07	1.62	.70
c3 If you enjoy your job, you can't really be stressed by it	3.37	1.67	.49
c4 Stress affects people whose ideas conflict with those of the company	4.31	1.55	.73
c5 A person is stressed at work usually because he/she has no friends	3.07	1.63	.66
c6 Stress mainly affects people who have an unsympathetic boss	4.30	1.70	.65
3. <i>Demographic sub-groups</i> Eigenvalue = 2.18 Var = 9.9% $\alpha = .68$	3.64	1.05	
c12 If an organization has a lot of young employees, older ones tends to feel threatened by this, which leads to stress	3.64	1.37	.57
c13 Women are more stressed than men at work because their careers develop more slowly, and they are expected to perform better than male colleagues to obtain promotions	3.45	1.55	.80
c15 A woman will be more stressed at work because male attitudes towards female 'bosses' or colleagues create a difficult and constantly challenging climate	3.39	1.42	.78
c17 A female employee will be stressed if the boss is too friendly	4.08	1.49	.54
4. <i>Danger, Pressure</i> Eigenvalue = 1.77 Var = 8.1% $\alpha = .55$	5.07	0.94	
c16 People whose work involves physical danger, like policemen, are often very stressed	4.85	1.40	.54
c18 The risk of redundancy is a very stressful factor	5.98	1.37	.69
c19 The higher status of the job, the more extensive and disruptive the stress people experience	4.43	1.51	.57
c20 Stress result of having to work too fast and in a limited amount of time	5.00	1.49	.63
5. <i>Routine, External Control</i> Eigenvalue = 1.65 Var = 7.5% $\alpha = .50$	3.45	1.07	
c14 It is less stressful to be checked upon regularly at work, because this avoids possible mistakes and it is helpful in pointing out expectations	3.63	1.40	.55
c21 If you work with potentially dangerous machines, all you need to do is to be careful and work properly in order not to be greatly stressed	3.72	1.61	.63
c22 If a boss is very authoritative, then the job's demands are clearly defined and employees won't become stressed	3.00	1.46	.73

M = mean; Lo = loading.

The fourth factor was labelled Danger and Pressure. Despite the relatively low proportion of explained variance (8.1%) and the relatively low factor loading of the included items, the fourth factor had the highest mean. This indicated that the participants perceived this theme as the most potent sources of work stress. In fact, all individual items with the highest means loaded highest on this factor. The fifth factor, Routine and External Control, accounted for 7.5% of the variance. All items with high loading on this factor suggested that work stress could best be avoided by adherence to routine and strict external control.

3.1.2. *'Alleviation' of work stress:* The factor analysis on alleviation of work stress (table 2) yielded four factors with an eigenvalue greater than 1, together accounting for about 56% of the total variance. The first factor, accounting for 16.1% of the variance was labelled Inner Control as the items with the highest loading referred to self-reliance or self-control as primary means to overcome work stress.

Table 2. Means and factor loadings from the factor analysis of perceived 'alleviation' from work stress.

Factor (Reducing stress depends on...)	M	SD	Lo
1. <i>Inner control</i> Eigenvalue = 2.25; Var = 16.1% $\alpha = .68$	3.80	0.97	
a1 How hard a person tries	3.34	1.44	.64
a2 A person's general ability to overcome problems	4.88	1.26	.71
a3 How much self-control the person has	4.29	1.44	.79
a4 How embarrassed the person feels about having the problem	3.84	1.53	.53
a5 Whether there is something wrong with the person's brain or nervous system	2.65	1.58	.42
2. <i>Confidence, Faith</i> Eigenvalue = 1.98 Var = 14.2% $\alpha = .66$	4.79	0.95	
a6 Whether the person believes it is possible to eliminate the problem	4.76	1.39	.54
a9 How much information a person has about the problem	4.73	1.25	.63
a10 Whether the problem is a symptom of some other deep-rooted problem	4.87	1.28	.65
a12 How damaging the problem is to the person's feeling of self-worth and self-esteem	4.82	1.49	.76
3. <i>Seeking help</i> Eigenvalue = 1.91 Var = 13.7% $\alpha = .83$	3.71	1.33	
a7 Whether the person seeks out trained medical/psychological help	3.86	1.50	.87
a8 Whether the person joins other self-help groups for their problems	3.56	1.39	.86
4. <i>Avoidance</i> Eigenvalue = 1.69 Var = 12.1% $\alpha = .50$	3.11	1.06	
r11 How lucky a person is	2.31	1.39	.72
r13 How much eliminating the problem would please others	3.26	1.49	.67
r14 How much the a person stays away from situations that make the problem worse	3.77	1.63	.60

The second factor, Confidence and Faith, accounted for 14.2% of the variance. The items with high loading mainly concerned the person's faith in his/herself and in the possibility to overcome problems. This factor had the highest mean, thus indicating the items loading on this factor to be of particular importance to the alleviation of work stress.

The third factor, Seeking Help, accounted for 13.7% of the variance. Only two items, preferring to seeking professional help or Help and support from other people in the same predicament loaded highest on this factor. The fourth factor, labelled Avoidance and External Control, accounted for 12.1% of the variance. The three items loading highest on this factor all suggested that reducing work stress mainly depended on external forces.

The causes and alleviation factor scores were then inter-correlated separately for males and females. The results were similar for both groups and showed that correlations were all positive and in the range  $r = .20$  to  $r = .40$ . Correlations between alleviation factors were lower than between causal factors for both males and females. Further while correlations between causes and alleviation were all positive they were more modest, approximately  $r = .15$ .

### 3.2. Longitudinal results

3.2.1. *The relation between lay theories of work stress at baseline and self-reported strain in the follow-up:* To estimate the relations between lay theories of work stress at baseline and self-reported strain in the follow-up 14 months later, linear multiple regression analysis was used. All constructs concerning 'causes' and 'alleviation' were simultaneously entered. As revealed in table 3 there was a statistically significant relationship between lay theory factors and mental strain, and the proportion of variance in mental strain explained by the lay theory constructs was 2.5%.

With regard to the separate constructs, the belief of 'Demographic subgroups' as a cause of work stress was positively related to mental strain; in other words, participants who in the baseline believed gender and/or age differences to be a source of work stress tended to

Table 3. Multiple linear regression analysis: Lay beliefs of work stress at baseline in relation to mental strain (GHQ) 14 months later.

	Sum of squares	df	Mean squares	F
Regression	11.39	9	1.27	6.22**
Residual	449.41	2211	0.20	
Total	460.79	2220		
$R^2 = .025$				
Significant lay belief factors:		$\beta$		
'Causes':				
Demographic subgroups		.098**		
Routine, external control		-.057*		
'Alleviation':				
Inner control, self-reliance		-.103**		
Confidence, faith		.053*		

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

report a higher degree of mental strain at the follow-up. On the other hand, the factor 'Routine, External control' to a moderate degree related negatively to mental strain, thus indicating that participants who believed in routine and external control as a way to avoid work stress tended to report lower degrees of mental strain at a later point in time. The belief in 'Inner control' to alleviate work stress related negatively to mental strain at the follow-up, whereas 'Confidence, faith' as a source of alleviation was slightly positively related to later mental strain.

As shown in table 4, the relationship between lay theories and perceived job stress was also significant, with 3.5% of the variance in job stress being explained by the lay belief constructs.

Two constructs of 'causes' of work stress were significantly related to perceived work stress. 'Danger, pressure' related positively, thus indicating that participants who perceived workplace factors related to this construct as important causes of work stress tended to perceive a higher degree of job stress. On the other hand, beliefs in 'Routine, external control' to avoid work stress related negatively to work strain, indicating that a higher agreement with this construct tended to be associated with lower perceived job stress at follow-up. Also, beliefs in alleviation through 'Inner control' as well as by 'Seeking help' were negatively related to later job stress.

#### 4. Discussion

The present longitudinal study was based on a large sample from a wide range of occupational groups in the British workforce from many organizations and industrial sectors, and the results may therefore be regarded as valid. The factor structures that emerged, on beliefs relating to 'causes' of work stress as well as those on beliefs relating to 'alleviation' from work stress, show a great deal of resemblance to the outcomes from the previous study by Furnham (1997). The discrepancies in the factor solutions that appeared between the two studies can to some extent be explained by the fact that the number of items had been reduced in the present study. Nevertheless, the number of factors on both aspects of work stress was the same, and the themes of almost all the factors were similar. These results resemble previous findings on lay theories of mental health, where questions on the aetiology, manifestations and cures of these problems replicate over different samples, indicating a robust structure to these beliefs/lay theories (Furnham, 1988).

Table 4. Multiple linear regression analysis: Lay beliefs of work stress at baseline in relation to perceived job stress 14 months later.

	Sum of squares	df	Mean squares	F
Regression	52.46	9	5.28	8.40**
Residual	1434.38	2066	0.69	
Total	1486.84	2075		
$R^2 = .035$				
Significant lay belief factors:		$\beta$		
'Causes':				
Danger, pressure		.110**		
Routine, external control		-.101**		
'Alleviation'				
Inner control, self-reliance		-.072**		
Seeking help		-.063**		

\* $p < 0.5$ ; \*\* $p < 0.1$ .

Previous studies relating lay theories or subjective meaning of work stress to strain have been cross-sectional. As far as we know this is the first study on this theme with a longitudinal design. Lay theories at baseline related significantly to mental strain as well as to perceived job stress at the follow-up 14 months later. In terms of effect size (Cohen, 1988), the proportions of variance explained by the lay belief factors were in the range defined as small for both outcome measures. According to Cohen (1988, p. 13) 'both because of the attenuation in validity of the measures employed and the subtlety of the issues frequently involved' many effects sought in various fields of psychology are likely to be small. Although the effect size of the findings in this study may be a bit disappointing, it is worth noting that in a meta-analysis of 48 occupational stress-reducing interventions, a small overall effect size was found on various indicators of well-being (van der Klink, Blonk, Schene, & van Dijk, 2001). Similarly a meta-analysis on the role of social support in the work-stress process (Viswesvaran, Sanchez, & Fisher, 1999) revealed effects of the same magnitude or not much stronger than those found in the present study. In other words, although lay beliefs were found to explain a small proportion of the variance in well-being, their long-term impact appears to be in the same range as these interventions or as the impact of the well-established construct of support in the stress process.

In this study only the direct effects on well-being of lay beliefs about work-stress were analysed. From a more theoretical perspective, lay beliefs may rather be conceptualized as an aspect of appraisal and therefore be thought of as having a mediating role between 'objective' working conditions and well-being. Such an approach would also draw support from the findings in previous cross-sectional studies (Daniels *et al.*, 2002; Devereux *et al.*, 2004; Payne & Morrison, 1999) where work demands and the individual meaning of these demands were combined to explain strain or well-being. For the further analysis of the role of lay beliefs in the stress process it is recommended that the mediating effects of subjective beliefs in the stressor-strain relation be analysed.

Factor analysis was crucial to establishing the underlying dimensions of the lay theories. However, a problem with the factor analytic approach was that the emerging factor solutions were not highly related to the relative importance of the perceived causes of work stress, as indicated by the mean scores of the items. The most important perceived causes of work stress, the factors with the highest mean scores, had moderately high factor loadings and formed a factor with a limited proportion of explained variance and a weak measure of alpha consistency. On the other hand, the three items that loaded highest on the first factor



had the lowest mean scores, thus indicating that they were to a very low degree perceived as causing work stress. The same type of problem also appeared in the study by Furnham (1997). Muncer *et al.* (2001) argued that this problem is generally associated with the factor analysis approach. The discrepancies between the properties of the factor solution and the relative importance of the perceived causes of work stress may also in part be valid for the very limited proportion of explained variance in the lay belief factor.

A main finding of this study was that beliefs about causes of—and alleviation from—work stress were shown to be related to long-term perceived mental strain. Although the effect sizes were of a small magnitude, a further comparison showed that they were in the same range as what can be expected from the impact of stress-reducing interventions. From a theoretical perspective, beliefs can be thought of as an aspect of the appraisal process. A recommendation for future research is to further analyse how beliefs about work stress interact with the objective occurrence of potential stressors.

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### References

- CASSIDY, T. (1999). *Stress, Cognition and Health*. London: Routledge.
- COHEN, J. (1988). *Statistical Power Analysis for the Behavioral Sciences*, 2nd edn. Hillsdale: Erlbaum Associates.
- COHEN, S., KESSLER, R. C., & GORDON, L. U. (1995). Strategies for measuring stress in studies of psychiatric and physical disorders. In S. Cohen, R. C. Kessler, & L. U. Gordon (Eds.), *Measuring Stress: A Guide for Health and Social Sciences*. Oxford: Oxford University Press.
- DANIELS, K., HARRIS, C., & BRINER, R. B. (2002). *Understanding the Risk of Stress: A Cognitive Approach*. Norwich: HSE Books.
- DEVEREUX, J., RYDSTEDT, L., KELLY, V., WESTON, P., & BUCKLE, P. (2004). The role of work stress and psychological factors in the development of musculoskeletal disorders. The Stress and MSD Study. Contract Research Report 273/2004. Norwich: HSE Books.
- DEWE, P., COX, T., & FERGUSON, E. (1993). Individual strategies for coping with stress at work: A review. *Work & Stress*, 7(1), 5–15.
- DICK, P. (2000). The social construction of the meaning of acute stressors: A qualitative study of the personal accounts of police officers using a stress counselling service. *Work & Stress*, 14, 226–244.
- FURNHAM, A. (1988). *Lay Theories: Everyday Understanding of Problems in Social Science*. Oxford: Pergamon Press.
- FURNHAM, A. (1997). Lay theories of work stress. *Work & Stress*, 11, 68–78.
- GOLDBERG, D. P. & WILLIAMS, P. (1988). *A User's Guide to the General Health Questionnaire*. Windsor: NFER-Nelson.
- HAIR, JR., J. F., ANDERSON, R. E., TATHAM, R. L., & BLACK, W. C. (1995). *Multivariate Data Analysis*, 4th edn. Englewood Cliffs, NJ: Prentice Hall.
- HSIEH, T.-H. (2004). The relationship between employee's personal work standards and perceived work stress. *International Journal of Stress Management*, 11(2), 177–187.
- KIRKCALDY, B. D., ATHANASOU, J. A., & TRIMPOP, R. (2000). The idiosyncratic construction of stress: Examples from medical work settings. *Stress Medicine*, 16, 315–326.
- LAZARUS, R. S. (1993). From psychological stress to the emotions: A history of changing outlooks. *Annual Review of Psychology*, 44, 1–21.
- LAZARUS, R. S. & FOLKMAN, S. (1984). *Stress, Appraisal and Coping*. New York: Springer Verlag.
- LAZARUS, R. S., & LAZARUS, B. N. (1994). *Passion and Reason: Making Sense of our Emotions*. Oxford: Oxford University Press.

- LEWIG, K. A. & DOLLARD, M. F. (2001). Social construction of work stress: Australian newspaper media portrayal of stress, 1997–98. *Work & Stress*, 15, 179–190.
- MONROE, S. M. & KELLEY, J. M. (1995). Measurement of stress appraisal. In S. Cohen, R. C. Kessler, & L. U. Gordon (Eds.), *Measuring Stress: A Guide for Health and Social Sciences*. Oxford: Oxford University Press.
- MUNCER, S., TAYLOR, S., GREEN, D. W., & MCMANUS, I. C. (2001). Nurses' representation of the perceived causes of work-related stress: A network drawing approach. *Work & Stress*, 15, 40–52.
- PARKER, J. D., FINKEL, M. D., & INDICE, L.-C. (1993). Stress and illness: The structure of a belief system. *Canadian Journal of Behavioural Science*, 25(2), 193–204.
- PAYNE, R. L. & MORRISON, D. (1999). The importance of knowing the affective meaning of job demands revisited. *Work & Stress*, 13, 280–288.
- POLLOCK, K. (1988). On the nature of social stress: Production of modern mythology. *Social Science and Medicine*, 26, 381–392.
- SMITH, A., JOHAL, S., WADS WORTH, E., SMITH G. D. & PETERS, T. (2000). The Scale of Occupational Stress: The Bristol Stress and Health at Work Study. Contract Research Report 266/2000. Sudbury: HSE Books.
- URSIN, H. & ERIKSEN, H. R. (2002). The Cognitive Activation Theory of Stress. <http://www.uib.no/ibmp>
- VAN DER KLINK, J. J. L., BLONK, R. W. B., SCHENE, A. H., & VAN DIJK, F. J. H. (2001). The benefits of interventions for work-related stress. *American Journal of Public Health*, 91, 270–276.
- VISWESVARAN, C., SANCHEZ, J. I., & FISHER, J. (1999). The role of social support in the process of work stress: A meta-analysis. *Journal of Vocational Behavior*, 54, 314–334.
- WESTMAN, M. (1996). An experimental examination of the impact of rater's stress on performance appraisal. *Journal of Social Behavior and Personality*, 11, 753–766.