Psychosocial Job Stressors and Mental Health: The Potential Moderating Role of Emotion Regulation

Lay Too; Peter Butterworth;

Author Information
Centre for Mental Health, Melbourne School of Population and Global Health, The University of Melbourne, Parkville, Victoria, Australia (Drs Too, Butterworth); Melbourne Institute of Applied Economic and Social Research, The University of Melbourne, Parkville, Victoria, Australia (Dr Butterworth).

ABSTRACT

Objective
This study examined whether emotion regulation moderates the association between psychosocial job stressors and psychological distress.

Methods
We used data from the Work and Well-being Survey of 1,044 Australian working adults. An adjusted linear regression model was used to estimate the moderating effect of emotion regulation.

Results
The impact of low fairness and low control at work on distress was stronger in individuals with low (rather than high) cognitive reappraisal ($\beta = 2.42$, 95% CI = 0.07–4.76; $\beta = 2.58$, 95% CI = 0.04–5.12, respectively), whereas the impact of high demands on distress was stronger in those with high (rather than low) expressive suppression ($\beta = 2.94$, 95% CI = 0.78–5.10).

Conclusions
Individual differences in emotion regulation in response to adverse job conditions should be considered in the management of workplace mental health.

**Keywords**

Job control; job demands; job insecurity; job fairness; cognitive reappraisal; expressive suppression; psychological distress

**INTRODUCTION**

Employment is widely shown to be associated with better mental health than unemployment (1, 2). However, the mental health benefits of employment are not universal as jobs vary in psychosocial, physical and economic characteristics. The psychosocial aspects of work, including high demands, low decision latitude or control, high strain, insecurity, a low level of social support, and effort-reward imbalance are well-documented job stressors that can have a profound negative effect on the mental and physical health of employees (3-9).

There is growing attention seeking to understand individual differences in the effect of job stressors (10), which may be influenced by factors such as life stage, gender, personality, health, family commitments, and personal preferences. The Job Demands-Resources (JD-R) Model provides a framework to consider individual differences, positing that resources can offset the adverse effect of job demands on employee wellbeing (11, 12). In addition to resources associated with work (such as social support), the JD-R model has been used to examine the potential moderating role of personal characteristics. Research shows, for example, that employees with high self-esteem or optimism cope more effectively with demanding work conditions and, in turn, are less likely to experience adverse outcomes such
as poor mental health (13-15). Mindfulness has also been shown to be negatively associated with psychological stress due to perceptions of low emotional demands (16).

Emotion regulation is a trait-like process in which individuals attempt to modulate their emotion to respond appropriately to a given situation (17, 18). Several studies have showed that emotion regulation strategies such as cognitive reappraisal (i.e. recognizing a negative thought pattern and changing the pattern) can help individuals regulate their emotions and more effectively cope with negative life experience and emotional distress, while other strategies such as expressive suppression (i.e. hiding, inhibiting, reducing emotions or feelings) have the reverse effect (19-21). Previous studies indicate that emotion regulation strategies are used in response to stressful work conditions (22, 23). For example, amongst employed students at a university, cognitive reappraisal was utilized when there were adverse customer events and expressive suppression was used when there were conflicts with customers (22). Cognitive reappraisal was positively linked with job satisfaction and negatively linked with negative affect, while expressive suppression was negatively linked with job satisfaction and positively linked with negative affect (24). Individuals who used cognitive reappraisal less frequently and used expressive suppression more frequently tended to experience burnout when work stress was high (25). Nevertheless, the evidence on the moderating role of emotion regulation in the association between psychosocial work stressors and mental health is scarce. The current study aims to investigate whether two types of emotion regulation — cognitive reappraisal and expressive suppression — moderate the association between psychosocial work stressors and psychological distress.

We hypothesize that: (i) adverse psychosocial job characteristics are associated with poor mental health; (ii) low cognitive reappraisal and high expressive suppression are independently associated with poor mental health; and (iii) individuals with low cognitive reappraisal deal with adverse work conditions less effectively and thus have a greater
vulnerability to psychological distress in adverse work conditions than those with high
cognitive reappraisal. In contrast, individuals with high expressive suppression cope with
adverse work conditions less well and this leads to greater psychological distress, compared
with those with low expressive suppression.
METHODS
This study was reported in accordance with the Strengthening the reporting of observational studies in epidemiology (STROBE) guidelines (26) and approved by the Health Sciences Human Ethics Committee at the University of Melbourne (ID: 1750679.1).

Study Sample and Data Collection
Data were collected as part of the Work and Wellbeing Survey. Participants were drawn from a large online panel (over 350,000 members) managed by the Online Research Unit (ORU). The panel is a non-probability sample of Australian residents with an age, gender, and location distribution that reflects Australian population benchmarks in the 2016 Australian Bureau of Statistics (ABS) Census. The study was designed to collect data on the characteristics of a sample of employed Australians, including socio-demographics, emotional management, attitudes towards current main job, general health and wellbeing, work values, perceptions of health and wellbeing, and income and spending. The sample was restricted to individuals who were: (i) aged between 18 and 64 years; (ii) employed at the time of survey (including those on long-term leave); and (iii) not self-employed. The ORU sent invitations to participate via email (including a link to the online questionnaire) to a subset of their online panellists considered likely within scope from 13 December 2017. The target sample applied quotas of age, gender, and location that aligned with ABS benchmarks. All panellists received incentives to participate in the survey in recognition of their time.

Figure 1 shows the process of selecting panel members for inclusion in this study. The target sample was 1000, and initially email invitations were sent to 12,753 panel members. The target sample and quotas were reached on 18 December 2017, and the survey was closed. At that time, 1531 individuals had commenced the survey. Four hundred and two were excluded during the screening phase as they did not meet eligibility criteria, and an additional
85 were excluded because of invalid responses or incomplete surveys. The final survey sample comprised 1,044 panel members. As the survey stopped when sample targets were achieved, it is not possible to calculate a standard response rate.

[FIGURE 1]

**Outcome Variable**

Kessler Psychological Distress Scale (K10), a widely-used 10-item questionnaire was used to measure emotional distress (27, 28). The K10 was based on questions about anxiety and depressive symptoms that a person has experienced in the past four weeks. It used a five-point Likert scale, ranging from 1 “none of the time” to 5 “all of the time”. We computed a total score by summing the scores of all items for each respondent to approximate their psychological well-being. The total score was used as an outcome variable in this study. Higher score indicated higher levels of psychological distress.

**Exposure Variables**

Psychosocial work stressors were measured using thirteen items. These items were based on Karasek and Theorell’s demand-control-support model (29) and Siegrist’s effort-reward imbalance model (30) and drawn from previous surveys including the PATH Through Life Survey (31), the Adult Psychiatric Morbidity Survey (32), and the HILDA Survey (33). The current analysis focused on the work items that loaded on factors corresponding to job fairness, job demands, job control, and job insecurity. Respondents were asked to rate the degree to which they experienced each job characteristics on a five-point Likert scale, ranging from 1 “strongly disagree” to 5 “strongly agree”. We computed the mean score for each scale and then generated a binary variable identifying approximately 30% of respondents with the most
adverse work characteristics (e.g., low control, high demands). This approach was consistent with prior research (34, 35). Therefore, our sample included 28% of respondents reporting low job fairness, 28% reporting high job demands, 25% reporting low job control, and 20% reporting high job insecurity.

**Emotion Regulation**

While the original Emotion Regulation Questionnaire (ERQ) developed by Gross and John in 2003 (36) comprised 10 items, we used a nine-item version which has superior fit in the Australian and United Kingdom context demonstrated by Spaapen and colleagues in 2014 (37). Respondents were asked to indicate to what extent they agreed with each item related to emotion regulation on a five-point Likert scale. The scale ranged from 1 “strongly disagree” to 5 “strongly agree”. A principal components factor analysis using varimax rotation with Kaiser normalised matrix revealed the expected two factor solution: cognitive reappraisal and expressive suppression which explained 64% of the variance (Table 1). Empirical support for the two-factor solution included the small and similar eigen values and insufficient number of primary loadings on all subsequent factors. Cronbach’s alpha for cognitive reappraisal and expressive suppression were 0.86 and 0.80 respectively, indicating strong reliability.

Cognitive reappraisal and expressive suppression scores were derived by summing the relevant items and diving the sum score by the total number of values. Median split was used to dichotomise the factors into ‘low’ and ‘high’ categories. As a result, there were 47% of respondents with high levels of cognitive reappraisal and 49% with high levels of expressive suppression.

[TABLE 1]
Covariates

Several socio-demographic variables which are known to be associated with mental health and potentially confound the associations between work stressors and mental health (38, 39) were included in analyses. These variables included age, sex, highest level of education attainment, whether there was a child living at home, income level, and financial hardship. The categories for highest level of educational attainment included primary education, secondary education, vocational training (i.e., Technical And Further Education (TAFE)) or equivalent, University Bachelor or equivalent, and Postgraduate or diploma. Individuals with annual income lower than $30,000 were classified as ‘low income earners’, between $30,000 and $89,999 as ‘middle income earners’, and $90,000 or above as ‘high income earners’. Financial hardship was derived based on seven items (e.g., went without meals, asked for financial help from friends or family). Respondents were considered to have financial hardship if they responded “yes” to any of the seven items. These measures used in analyses, with the exception of age and sex, included a category of “prefer not to answer”.

Statistical Analysis

We conducted descriptive analysis to detail the characteristics of the sample, including emotion regulation. Chi-square tests were used to assess the significance of the differences in emotion regulation across sex, age group, and educational attainment. Pearson’s correlation coefficients were reported to show the strength of correlations among the job stressors and emotion regulation factors. We used linear regression models to estimate the association between each work variable and psychological distress, as well as the association between the two factors of emotion regulation and psychological distress. We then examined the extent in which the emotion regulation factors moderated the association between work variables and psychological distress by comparing models comprising only main effects of each work and
emotion regulation variable with models that also incorporated the interaction effect (assessing difference using the likelihood ratio test). A final set of models then included the covariates. All analyses were performed using Stata 14.2 (StataCorp).

RESULTS

Sample Characteristics

There were 1,044 respondents included in this study, with 56% female (Table 2). Each age category contained about a quarter of the respondents, but age category of 18−24 contained 2.7% of respondents. Most of our respondents lived in metropolitan areas (79%). Approximate 80% had completed post-secondary education. Three quarters of respondents were in a relationship, with 55% married. Forty-eight percent had a child at home all or some of the time.

In this sample of workers, 66% worked full-time, 25% worked part-time and 8% worked on a casual basis. The majority of respondents had a permanent contract (82%). Near to 19% were in a low-skilled occupation, while 35% were in a high-skilled occupation.

Around 11% of respondents reported low annual income (< $30,000) and 24% reported high income (≥ $90,000). A quarter of respondents reported experiencing financial hardship in the past 12 months.

TABLE 2

Characteristics of Emotional Regulation

The proportion of respondents classified with high levels of cognitive reappraisal was similar across sex, age group, and education level (Table 3). A similar pattern was seen in expressive suppression, except that males had significantly greater levels of expressive suppression than females ($\chi^2 = 27.49, p < 0.001$).
Correlations among Workplace Stressors and Emotion Regulation Factors
Table 4 shows the correlations among four continuous measures of work stressors and two continuous measures of emotion regulation. The correlations between factors were low to moderate, ranging from 0.08 (job fairness and expressive suppression) to 0.46 (job control and job fairness). Emotion regulation factors were not highly correlated with any job variables (r < 0.35).

Workplace Stressors and Mental Health
Respondents who experienced low job fairness (β = 2.86, 95% CI = 1.67−4.06), high job demands (β = 6.80, 95% CI = 5.68−7.93), low job control (β = 1.35, 95% CI = 0.10−2.60), and high job insecurity (β = 2.88, 95% CI = 1.53−4.22) had a significantly higher level of psychological distress, compared with those who experienced a low level of each of these work stressors.

Emotion Regulation and Mental Health
High expressive suppression was significantly associated with greater distress (β = 3.66, 95% CI = 2.60−4.72); however, there was no statistically significant effect of low cognitive reappraisal on psychological distress (β = 0.62, 95% CI = -0.47−1.70).
Moderation Effects

In the models without and with the adjustment for covariates of sex, age group, highest level of education attainment, child at home, income level and financial hardship (Figure 2 and Table 5), cognitive reappraisal significantly moderated the association between some job stressors (job fairness, job demands, and job control) and psychological distress. Expressive suppression also had a significant moderating effect on the association between these three job stressors and psychological distress. Neither emotion regulation factor moderated the association between job insecurity and distress.

The adverse influence of job stressors (low fairness, low control) on psychological distress was stronger in respondents with low cognitive reappraisal than those with high cognitive reappraisal. People who had low levels of cognitive reappraisal were more likely to be distressed when encountering low fairness ($\beta = 2.42$, 95% CI = 0.07–4.76) or low control at work ($\beta = 2.58$, 95% CI = 0.04–5.12), compared with those who had high levels of cognitive reappraisal. However, for job demands, the significant interaction term appeared to indicate that the combination of low demands and high cognitive reappraisal was associated with lower psychological distress, compared with all other combinations ($\beta = -2.45$, 95% CI = -4.58–0.32).

Furthermore, high job demands were associated with greater psychological distress for those with high expressive suppression, compared with those with low expressive suppression ($\beta = 2.94$, 95% CI = 0.78–5.10). In contrast, the combinations of high fairness and low expressive suppression ($\beta = -2.37$, 95% CI = -4.60–0.13) as well as high control and low expressive suppression ($\beta = -3.33$, 95% CI = -5.69–0.98) were associated with lower psychological distress.

[FIGURE 2]
DISCUSSION

Our study examined whether emotion regulation (cognitive reappraisal and expressive suppression), theorised to be stable personality traits, moderated the negative impact of adverse psychosocial job conditions on psychological distress.

Our initial finding that low job fairness, high job demands, low job control, and high job insecurity were associated with poor mental health is consistent with the literature on job stress (3-8). Similarly, our finding that individuals with high expressive suppression experienced poor mental wellbeing supports the previous findings on emotion regulation (19-21). However, our finding indicates a non-significant negative association between cognitive reappraisal and psychological distress, although the direction of the association is consistent with the previous findings (19-21).

We found that cognitive reappraisal can moderate the relationship between some job conditions (job fairness and job control) and psychological distress. As such, individuals with high cognitive reappraisal were less likely to be distressed in low fairness or low control job conditions, compared with those with low cognitive reappraisal. This finding supports our hypothesis that cognitive reappraisal can facilitate adaptive coping, whereas individuals with low cognitive reappraisal deal with the adverse conditions less effectively and are more vulnerable to psychological distress. We also found that the tendency to suppress emotions was associated with greater psychological distress in high demand work conditions. This finding also supports our hypothesis that expressive suppression is a harmful coping strategy and contributes to employee vulnerability to poor mental health when job stress arises. Moreover, we found that the combinations of low demands and high cognitive reappraisal, high fairness
and low expressive suppression, and high control and low expressive suppression were uniquely associated with better mental health. This finding implies that in these job conditions, the single factor of cognitive reappraisal or expressive suppression has a less robust effect on mental health than the combination of job and emotion regulation factors. While not commonly examined in the job stress literature, our finding on cognitive reappraisal is consistent with those reported in other research examining adverse life events. For example, a study on Australian adolescents found that the association between adverse life experience (e.g., parental separation) and psychological distress was significantly stronger among those with low cognitive reappraisal than those with high cognitive reappraisal (21). The study did not find expressive suppression moderated the association. Similarly, another study found that cognitive appraisal was associated with greater posttraumatic growth after a relationship breakup (19).

The current findings and other evidence (25, 40) suggest that training in effective emotion regulation strategies may provide opportunities to lessen the adverse impact of job stressors. For example, affect regulation training (41) has been found to improve emotion regulation skills and mental wellbeing in elderly healthcare employees (42). The Integrative Training of Emotional Competencies (43) has also enhanced the application of emotion regulation strategies in police officers (44). These programs can be incorporated into workplace training programs.

We did not find evidence of emotion regulation moderated the association between job insecurity and distress. This possibly means that the association is affected by a different mechanism. The finding suggests that the effects of emotion regulation may only mitigate the impact of some work stressors. Future studies need to be conducted in other samples to confirm our findings.
Our study contributes to research considering individual differences in the association between psychosocial job stressors and mental health. However, we recognise some limitations, which should be considered. First, while our sample matched Australian population on key demographic characteristics, it comprised of 70% respondents who scored higher than 15 on the psychological distress scale, which is much higher than the proportions reported in other population surveys. For example, the 2007 Australian mental health and wellbeing survey estimated 29% of the population scored above this cut-off point (45). Therefore, our findings, although based on within sample analysis, may not generalize to the Australian general population and warrant replication with a probability sample. Second, because most of our respondents live in urban areas, our sample may not reflect the working conditions of individuals living in regional or remote areas. Third, because the current study used a cross-sectional design, causal effects cannot be inferred from the present findings. Fourth, our study is based on self-report data which may have increased the risk of overestimating the associations due to common method variance. Finally, the explanatory power for interactions between emotion regulation and negative work conditions was generally small (< 20%); however, this is not uncommon in survey research (46).

In conclusion, individuals with low cognitive reappraisal tend to experience greater distress when job fairness or control is low while individuals with high expressive suppression tend to experience greater distress when job demands are high. The findings highlight the importance of individual differences in emotion regulation in understanding mental health at work. It has significant implications for workplace health management.
REFERENCES


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FIGURE 1. Selection of panel members

FIGURE 2. Interactions of job stressors and emotional regulation factors on psychological distress