

Work Environments, Stress, and Productivity: An Examination Using ASSET

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In this study (N = 16,001), the predictors of productivity (i.e., work performance) were investigated with A Shortened Stress Evaluation Tool (E. B. Faragher, C. L. Cooper, & S. Cartwright, 2004), which incorporates individual work stressors, stress outcomes (physical and psychological well-being), and commitment (both to and from an organization). Psychological well-being, commitment from the organization to the employee, and resources were found to be predictive. Physical health, individual work stressors (with the exception of resources), and commitment from the employee to the organization were not identified as important. The findings are discussed with reference to both previous and future research. The large sample size and broad range of occupations included suggest the findings are generalizable to other employee groupings. Implications for both stress and management theory are discussed.

Keywords: stress, productivity, psychological well-being, commitment

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The established link between work stressors and employee well-being places a clear moral obligation on employers to provide a healthy environment (Patterson, West, Lawthom, & Nickell, 1997). In addition to this moral obligation, it has also been argued that employers should be aware of the impact of reduced well-being and ill health in monetary terms. For example, Kessler et al. (1999) estimated that, in terms of depression, monthly productivity losses of approximately \$200 to \$400 were experienced by each worker, and Greenberg, Stiglin, Finkelstein, and Berndt (1993) estimated that lost productivity due to depression cost American corporations \$12.1 billion in 1990 alone. Further, the impact of mental ill health on absenteeism has already been established in a number of studies (Pflanz & Heidel, 2003). Establishing a link among stressors, well-being, and productivity provides further compelling impetus to employers to ensure appropriate working conditions are maintained and adds to management understanding of the role of stress in organizations. In this article, we directly address this issue using the A Shortened Stress Evaluation Tool (ASSET) measure of stress (Faragher, Cooper, & Cartwright, 2004) and examine the linkages between stress-related factors and productivity.

There is clear recognition of and evidence for the existence of a relationship between workplace stressors and mental and physical health outcomes. Although this strong body of work helps with our understanding, there are further management issues that have been less well addressed. In particular, there is little research that examines the effects of stressors and health outcomes and their impact on productivity. The research reported here begins to address this by presenting the results of a large-scale study with a focus on the factors associated with productivity.

There is some, albeit sparse, evidence for the stress and productivity relationship. For example, Yeh, Lester, and Tauber's (1986) study on real estate agents ($N = 62$) revealed a negative relationship between stress and productivity using a self-report measure of stress. The authors were reluctant, however, to draw strong conclusions from their findings because of issues such as the small sample size and application within only one occupation. This study also only looked at the relationship between stress outcome and productivity and did not investigate the potential relationship between stressors and productivity.

It is a fundamental corollary of theories of stress that there should be a relationship between stress and productivity. It is taken as axiomatic, for instance, that the physical arousal associated with job stress enhances performance to a particular level, after which further stress results in decrements in performance. In one of the few studies that have looked at this directly, Jamal and Baba (1992) shed some light on the nature of the stressor-productivity relationship. These researchers tested four different models of the relationship, including positive and negative curvilinear and linear rela-

tions between stressors and three different forms of productivity. Data from blue-collar, managerial, and nursing employees overwhelmingly showed a direct, linear, negative relationship; the greater the stress was, the less productive the workforce. The four job stress factors Jamal and Baba examined (overload, conflict, ambiguity, and adequacy of resources) had slightly different relationships depending on the employee group the authors examined and the measures of productivity (quality, quantity, and motivation) they used.

For our purposes, the most relevant productivity measure is quantity. With respect to Jamal and Baba's (1992) single measure of quantity in relation to productivity, there was a clear negative, linear relationship with all stressors for all three occupational groups. The only exception to this was that for managers there was no relationship between quantity of productivity and adequacy of resources. This suggests that although there is strong evidence that there is a relationship between stressors and productivity, there may be some small differences as a function of job type. It would be useful, therefore, to examine this relationship across a wider variety of occupations to establish a more general model against which specific job types could be compared.

Identifying the stressors that are directly linked to reduced performance and the strains or stress outcomes that may be associated with reduced productivity would advance our understanding of the impact of stressors on organizational functioning in total rather than confining knowledge to worker health. Of particular interest is the relative impact of stressors compared with the influence of stress outcomes on productivity.

In the early 1990s, Wright, Bonett, and Sweeney (1993) identified the existence of only limited work on the organizational consequences of mental health. They also noted that a direct relationship between mental health and work performance had yet to be shown. Wright et al.'s (1993) work moved the field on, but, as they rightly admitted, with a sample of 33 real-estate workers, generalization was extremely limited. They concluded their article by noting, "It remains for future research using additional subjects in a variety of settings to establish the generalizability of the finding to other employee groupings" (p. 281). They also called for further studies that, among other things, examined further environmental correlates across varied work settings. The research reported here addresses both of these shortcomings.

Since Wright et al.'s (1993) article, several studies have attempted to show a relationship among stressors, well-being, and productivity. However, the research that does exist is usually related to burnout rather than to psychological well-being more generally. Further, the existing research does little to meet the requirement that data be collected from a wider variety of

employee groups. The majority of empirical work remains confined to specific populations and small samples.

In a quasi-experimental study, Munz, Kohler, and Greenberg (2001) examined the impact of a stress reduction program on emotional well-being and depression. Their results demonstrated an increase in job performance among those participants ($n = 55$) who experienced the program compared with a control group ($n = 24$). Although this provides some support for a performance–well-being–stressor linkage, it is difficult to determine whether there was a causal stress process or whether the change was the result of a generalized halo effect of the program.

Wright and Staw (1999) examined the relationship between measures of affect and supervisory performance ratings and reported that dispositional affect (measured via a psychological well-being scale) could significantly predict rated performance over time. Although the work provides support for the well-being–productivity relationship, once again the influence of individual stressors was not included, and the sample was small ($N = 81$) and specific to a public sector social welfare department.

The majority of other research has been limited to consideration of burnout. If we take burnout as a means to approximate psychological well-being for now, a number of studies that have examined its relationship to performance are relevant. Singh, Goolsby, and Rhoads (1994) demonstrated a relationship between emotional exhaustion and psychological and behavioral (performance–productivity) outcomes among customer service employees in a telemarketing company ($N = 377$) using self-report productivity measures. These measures involved participants comparing their own productivity with that of their colleagues. Wright and Bonett (1997) also indicated a negative association between productivity and emotional exhaustion but failed to show a similar relationship between performance and other dimensions of burnout. Although their research is useful, it does not overcome the limitations of sample size and variability previously identified by Wright et al. (1993), including as it did only a small sample ($N = 44$) of public sector workers.

A further study by Singh (2000) refined consideration of the impact of burnout by examining its relationship to productivity in terms of both quantity and quality. His results failed to support previous research findings that there was a significant impact on the productive quantity. Singh's data revealed a reduction in the quality of participants' work but no significant change in the quantity. In this study, the sample was limited to two different types of front line workers ($N = 301$) in a national call center in the United States.

Although studies of stress and productivity using burnout as a measure have some relevance, the nature of burnout is rather more limited than psychological well-being. In providing a rationale for the use of burnout

measures, several researchers (e.g., Singh, 2000) have made the point that it is not appropriate to consider stressors and their direct relationship to performance. They argued that a direct link would not necessarily be expected as a result of individual differences in coping with stressors. Two individuals may be exposed to the same levels of stressor but may cope differently. Thus, one worker may experience stress, whereas another does not, even though they have the same work environment. The argument states that burnout is a reflection of the individual's ability to cope. Suffering burnout is therefore evidence that the person is experiencing stress, so to understand the stress–productivity relationship it is necessary to examine burnout and productivity.

One of the difficulties with this strategy is that, almost by definition, burnout is associated with reduced productivity. The available research points most strongly to emotional exhaustion as the primary dimension of burnout that predicts job performance. Given that emotional exhaustion can be characterized as a “feeling of being depleted of energy and drained of sensation” (Singh et al., 1994, p. 559), it would be anticipated that depletion of energy would be associated with reduced effort. It would also be expected that those experiencing depression (e.g., Munz et al., 2001), with its symptoms of apathy and lethargy, would not perform well. What these studies leave unanswered is whether more general, nonenergy-related symptoms of psychological well-being should also be associated with reduced job performance. For instance, there may be negative indicators of psychological well-being that reflect high arousal that have a different impact on productivity.

THE PRESENT STUDY

There are a number of issues raised by this literature. First, as most studies have relied on small sample sizes from single occupations, there is a clear need for an examination of the stress–productivity relationship that uses a large sample drawn from a range of sectors. There is also benefit to be derived from including employees from customer-facing occupations with high emotional labor as well as those with fewer emotional demands. Research attending to these issues will be unique and the results significantly more generalizable.

Another important consideration is the need for research to use a more general psychological well-being measure rather than focusing on the more limited construct of burnout. This would provide an indication of mental health beyond exhaustion and depression, addressing what might be thought of as arousal as well as the depressed, exhausted aspects of psychological well-being. The psychological well-being scale used in this research has

previously been validated against the General Health Questionnaire (GHQ12; Johnson & Cooper, 2003), which thereby provides support for its applicability as a general stress–psychological well-being measure.

As described below, our study aims to address these needs first by using a large and varied sample and second through the use of such psychological factors as “constant irritability,” “having difficulty concentrating,” and “feeling or becoming angry with others” in the measure of psychological well-being.

In association with this measure of stress symptoms, we also consider the direct relationship between stressors and productivity. If we find that these associations do not exist, this will provide support for the hypothesis that stressors do not impact on productivity per se but that, via the ability to cope, it is their role in impacting psychological well-being that is important.

METHOD

Participants

Data were collected from 16,001 employees across 15 different organizations in the United Kingdom who participated in a stress evaluation program. These organizations were from both the public sector and the private sector and included two manufacturing plants, a local education authority, a large county council, three police forces, three universities, a prison service, and various other service providers. Respondents worked in a range of professional, administrative, and manual occupations. Among respondents with complete data, 62% were female, 85% worked full time, 65% were married, and 31% reported having a university-level education. Respondents were aged 18 to over 60 years, with approximately 6% aged under 25 years, 24% aged 25 to 36 years, 33% aged 36 to 44 years, 27% aged 44 to 55 years, and 10% aged over 55 years.

ASSET Questionnaire

The self-report questionnaire ASSET was used to collect data on employees' stress perceptions (stressors), health (psychological and physical well-being), and attitude toward their organization (commitment by and to the employee). ASSET is based on existing conceptualizations of stress (e.g., Cooper & Marshall, 1976) and incorporates additional measures of job satisfaction and organizational commitment. The measure is divided into four components. Section 1 contains 21 biographical questions that record both

demographic information (e.g., age, marital status) and lifestyle information, such as the amount of exercise undertaken by the respondent and his or her interests and hobbies. Sections 2, 3, and 4, contain items that address respondents' perceptions of their job (stressors), attitudes toward their organization (commitment), and health (physical and psychological), respectively. These sections divide into various subscales that have been empirically validated in previous research (Faragher et al., 2004). The scales are listed in Table 1 along with a description of the scale and the number of items with which it is associated. The questions in the Perceptions of Your Job and Attitudes Toward your Organization section are answered on a 6-point Likert scale, from *strongly disagree* to *strongly agree*. The Health subscale is answered on a 4-point Likert-type scale, from *not at all* to *much more than usual*. The scales are scored such that a high score on the two commitment scales represents a high level of commitment. High scores on the Perceptions of Your Job scale indicate higher levels of the stressor, and, likewise, high scores on the psychological and physical well-being scales indicate high levels of stress—poor psychological and physical health.

Scale Construction

Our interest in the current article is the predictive capacity of the 12 subscales of ASSET. Before we could compute the scale scores from the relevant items, it was necessary to handle missing values. This is because one computes ASSET scale scores by adding the relevant items, such that cases with absent values are associated with artificially low scores. A screening of the data revealed a small number of casewise missing values. Because these cases were randomly distributed throughout the 15 organizations, we removed cases with more than 20% of responses missing ($n = 1,183$; 7.4%). The number of missing values over the remaining cases was small (1.6%), and they were distributed randomly across the questionnaire items, with no one item associated with more than 5% missing data. Because these values were distributed randomly across a very large number of cases, we substituted missing values with the mean response for the relevant organization. For each of the remaining responses, we computed scores for the 12 subscales by adding the relevant item loadings, as reported in related research (Cartwright & Cooper, 2002).

Assessing Employees' Productivity

Tangen (2005) described *productivity* as a multidimensional term, the meaning of which varies depending on the context in which it is used.

Table 1. Subscales Measured by ASSET

Scales and Sub-Scales	Description	Number of items	Alpha
<i>Perceptions of your job</i>			
Work relationships	Degree of support from colleagues and peers (e.g., "My relationships with colleagues are poor.")	8	.76
Work-life balance	Extent to which the demands of work interfere with personal life (e.g., "I work unsociable hours.")	4	.70
Overload	Experienced workload and time pressures (e.g., "I do not have enough time to do my job as well as I would like.")	4	.77
Job-security	Level of job security (e.g., my job skills may become redundant in the near future.")	4	.54
Control	Amount of control over work (e.g., "I am not involved in decisions affecting my job.")	4	.67
Resources and communication	Adequacy of the available equipment and resources (e.g., "I do not have the proper equipment or resources to do my job.")	4	.65
Pay and benefits	Adequacy of pay (e.g., "My pay and benefits are not as good as other people doing the same or similar work.")	1	—
Your job	Stressors relating to the nature of the job itself (e.g., "My physical working conditions are unpleasant.")	8	.57
<i>Attitudes towards your organization</i>			
Perceived commitment of employee to organization	Extent to which the employee feels committed to the organization (e.g., "I am proud of this organization.")	5	.79
Perceived commitment of organization to employee	Extent to which the employee feels wanted by the organization (e.g., "I feel valued and trusted by the organization.")	4	.68
<i>Health</i>			
Psychological well-being	Occurrence of poor psychological health symptoms (e.g., "panic or anxiety attacks")	11	.90
Physical health	Occurrence of poor health symptoms (e.g., "lack of appetite or over-eating")	6	.75

Measuring employee productivity is therefore particularly problematic when one is attempting to measure across a wide variety of occupations. It is not possible to use comparable objective measures under these circumstances. Moreover, we considered using ratings by supervisors and line managers to be overburdensome within the current contexts. As such comparisons would require a considerable number of line managers, it would be extremely

difficult to assess whether the supervisors were using the same standards and impractical to train them in assessment procedures. As a result, we chose to use a self-report measure. Previous research has included measures whereby participants evaluate their own performance compared with that of their colleagues. This is problematic in that some people may consistently over- or under-assess their productivity compared with coworkers. However, it is likely that employees can compare their own recent performance with their usual levels of productivity and so rate their performance. As a measure of productivity, we therefore used a self-report item, "Over the last 3 months, roughly how productive have you felt in your job?" This item was scored on a 5-point Likert-type scale that ranged from *100% productive* to *less than 70% productive* in 10% bands. Although we acknowledge the difficulty with using self-report measures (e.g., Spector, 1994), this scale had a good distribution across respondents ($M = 2.70$, $SD = 1.20$). Moreover, evidence from other areas, such as safety and safety culture, indicate a high level of correlation between self-report measures of performance and a variety of other objective measures of performance (Hurst, Young, Donald, Gibson, & Muyselaar, 1996).

RESULTS

Preliminary Data Screening

Prior to analysis, we examined scores on the 12 subscales for outliers and fit between their distributions and the assumptions of regression analysis. We screened for multivariate outliers using an iterative application of Mahalanobis distance with $p < .001$. Specifically, we calculated Mahalanobis distance over the 12 subscales, removed any cases with significant Mahalanobis distance values, and recalculated Mahalanobis distance on the remaining data to identify outliers that were previously masked. We continued this process until no cases were associated with a significant Mahalanobis distance value. A series of nine iterations identified 3,106 multivariate outliers, which were removed from the data set.

A further 49 cases (11 on the Work Relationships scale, 27 on the Job Security scale, and 11 on the Job scale) were found to have scores that were more than three standard deviations (z score > 3.29 when $p < .001$) away from the mean, which suggests that these cases were univariate outliers. To maintain consistency with our treatment of multivariate outliers, we removed these cases. Of the remaining 12,846 cases, responses to all of the scales showed acceptable skewness ($M = 0.13$, $SD = 0.38$) and kurtosis ($M = -0.37$, $SD = 0.51$), and a collinearity diagnosis suggested no significant instances of multicollinearity or singularity.

Analysis Overview

Following the recommendations of Tabachnick and Fidell (2001) and Cohen and Cohen (1983), among others, we used a two-stage procedure of model development and cross-validation. This approach provides the best opportunity for understanding the predictive capacity of ASSET. To provide data for both stages of analysis, we randomly selected 80% ($n = 10,277$, approximately) of the sample for the model development stage and used the remaining 20% ($n = 2569$, approximately) of the data in cross-validation.

Model Development

We submitted the 80% model development sample to a stepwise regression analysis to determine which of the subscales best predicted employee productivity. In particular, we regressed the productivity measure on respondents' scores on the 12 ASSET subscales, which we added or removed from the final model on the basis of statistical criterion. We adopted a criterion based on change in correlation squared for the inclusion of predictor variables rather than the traditional F value significance test. This was because the number of cases in the current data meant that all statistical tests were based on extremely large degrees of freedom, such that predictors that contributed very little to the regression model (e.g., $r^2 < .001$) were still emerging as significant predictors. In the interest of parsimony and to provide a more robust test of hypotheses, we included only those variables that increased correlation squared by more than .005. Comparisons between models derived through our correlation squared criterion and the full models as derived from F value statistics showed differences in overall correlation squared of less than .007 in both cases.

Productivity

Table 2 gives the results of the regression analysis for predicting employees' productivity within the organization. The model in Table 2 suggests that three factors significantly predicted about 23% of the variance in employee productivity, $F(3, 10300) = 1021.1, p < .001, \eta^2 = .30$. In particular, as the beta values in Table 2 show, the model suggests that higher employee productivity was associated with (a) better (lower score) psychological well-being, (b) greater perceived commitment from the organization, and (c) greater access to resources and information (lower score).

Table 2. Standard Stepwise Regression of ASSET Sub-Scales on Employee Productivity

Variable	Unstandardized B	Standardized β	SE
Constant	1.95		.075
Psychological well-being	-.06	-.33	.002
Perceived commitment from the organization	.04	.17	.002
Resources and communication	-.03	-.10	.003
R		.48	.991
R ²		.23*	

Note. * $p < .001$.

Cross-Validation

To examine the predictive capacity of the regression, we correlated estimated scores for the productivity measures to their actual values, as found in the 20% cross-validation data. Specifically, we estimated scores for the cross-validation sample by inputting scale scores into a linear equation using the regression coefficients. This “weighting” of the respondents’ scores on the three predictor items, together with the regression constant, provided a predicted productivity value. We correlated this predicted value with the actual value reported by respondents to find the multiple correlation squared for the smaller sample. A large discrepancy between multiple correlation squared for the smaller and larger samples would indicate overfitting and lack of generalizability of the regression model.

The Pearson’s correlation between predicted and actual scores on the productivity measure was .48. The correlation differs significantly from zero ($p < .001$). Specifically, the variables in the productivity regression model (see Table 2) predicted approximately 18% of the variance in actual reported productivity. Thus, as with the original, the cross-validation sample was adequately predicted by the regression model. This suggests that ASSET has reasonable generality in predicted employee productivity in future samples.

DISCUSSION

The results show a number of interesting relationships. First, the strongest predictor of productivity was psychological well-being. This is in keeping with research on burnout and expands on that work by extending the measurement of psychological well-being (stress outcome) to a broader conceptualization. A second influential factor in productivity was commitment from the organization to the employee. A number of studies have demonstrated a commitment–productivity relationship, but these have tended to focus on employee commitment. The third interesting aspect of these

results is how few stressors directly predicted productivity. In our research, only limited access to resources accounted for significant variance in productivity. This may be explained by the view expressed by Singh (2000) that it is the differential ability to cope with stressors that is important rather than their mere presence. The results are, however, contrary to Jamal and Baba's (1992) findings, in which all of the stressors they measured were directly related to productivity. Further, it is probable that the importance in access to resources lies in a direct relationship with productivity that centers on having the "tools for the job" rather than any stress process mechanism.

A number of studies have shown a negative relationship with emotional exhaustion and productivity. The results here lend some support to that. One would expect a strong parallel between emotional exhaustion and mental well-being. One would also therefore predict a similar relationship with productivity, and this was indeed supported in that mental well-being was revealed to be the strongest predictor of productivity. Burnout and emotional exhaustion are conceptualized as extreme forms of stress, and the experience of emotional exhaustion suggests depletion of energy. A decrease in productivity as a result of burnout is therefore an unsurprising finding. This study extends the findings of a relationship between burnout and performance. Negative mental well-being is generally accepted as an antecedent of burnout; therefore, the finding that well-being impinged negatively on performance suggests that decrements to performance are likely to be evident earlier in the stress–burnout experience. The finding that well-being was important to performance supports prior research (e.g., Munz et al., 2001; Wright et al., 1993), and, furthermore, the findings demonstrate the strength of this relationship within a large sample size across a variety of different organizations. Further investigation of the relationship among well-being, burnout, and productivity requires studies incorporating both well-being and burnout measures.

An interesting absence among the predictors found to be significant is physical health, as it is reasonable to expect that reduced physical health would impact on performance. One explanation for this is that the strong relationship between physical health and psychological well-being, as demonstrated in other studies (e.g., Siu, Cooper, & Donald, 1997), masked the impact of physical health—that is, it is possible that physical health has only an indirect impact on performance through mental well-being.

Organizational commitment and its ability to predict a number of work behaviors, such as absenteeism, performance, and turnover, have been investigated and discussed by a number of researchers (see Mathieu & Zajac, 1990, for a review of the literature). In particular, the relationship between commitment and performance has been demonstrated. For example, DeCotiis and Summers (1987) reported that commitment had a direct positive influence on objective measures of work performance, and Meyer, Paunonen,

Gellatly, Goffin, and Jackson (1989) further found significant correlations between commitment and performance. However, despite the general acceptance of a link between commitment and performance, Mathieu and Zajac (1990), in their meta-analysis of commitment studies, reported that although individual studies had demonstrated a link, they found that “commitment has relatively little direct influence on performance in most instances” (p. 184). In the present study, commitment was measured across two scales, commitment from the organization to the employee and commitment from the employee to the organization. The finding that only commitment from the organization was significantly related to performance is surprising in that most other studies have reported links between employee commitment and performance. However, the relationship between commitment from an organization to employees and performance has not, to the best of our knowledge, been previously investigated directly. The findings of the present research support Mathieu and Zajac’s findings in indicating that employee commitment has no direct influence on productivity. Given their findings and ours, we propose that organizational commitment influences employee commitment and that there is therefore an indirect relationship between employee commitment and performance. Future research should aim to investigate further the relationship between the two types of commitment discussed in this article and their influence on both performance and other work behaviors.

One hypothesis that might help explain the relationship is that when there is support—that is, commitment—from the organization, it helps with the employee’s ability to cope with stressors. This was found by Brown and Peterson (1993). However, when such support is not available and employees feel a lack of commitment from the organization toward them, rather than providing support that aids coping, the lack of commitment becomes an additional stressor as well as providing fewer resources with which an employee can cope with stressors. Experienced as a stressor, lack of commitment from the organization impacts on and reduces performance.

Arthur (1994) examined different forms of organizational style or practice and their impact on performance. In keeping with the results, he found that a human resources approach that showed commitment rather than control by the organization was associated with increases in performance among blue-collar workers. He also found turnover to be lower. Although he did not address the issue of stress, it may well be the case that in control rather than commitment organizations, the experience of stress is also greater, leading to increased staff losses. That Arthur used objective performance measures is reassuring in supporting our results using subjective, self-report measures.

If, as suggested by this study, the degree of commitment an organization demonstrates toward its employees influences productivity rates, this has wider implications for management theory. It is reasonable to assume that organizations have more control over the degree of commitment they show

to employees than they do over the amount of commitment an employee shows to the organization, although the two are undoubtedly related concepts. It seems logical, then, that organizations should pay attention to demonstrating commitment to their employees to prevent a lack of commitment that negatively impacts on productivity.

This investigation into the precursors of decreased productivity extends prior research through the inclusion of work stressors in the analysis. However, with the exception of resources, no stressors were found to have a direct influence on productivity rates. The implication, therefore, is that individual work stressors have only an indirect effect on productivity through their impact on mental well-being.

In summary, this article has provided further support for the relationship between well-being and productivity and has enabled further insight into the relationship between commitment and productivity. Additionally, although individual work stressors were included in the design, we found no direct relationship between stressors and productivity, with the exception of resources. As discussed above, we propose that resources have a direct impact on productivity as a result of the inability to perform effectively without the tools of the job rather than through a stressor–stress pathway. Furthermore, in contrast to previous studies in the area, the large sample size and mix of occupations included in the research means the results can be viewed as generalizable to other employee groups. The research reported here provides a foundation for the examination of more complex interactions and relationships involved in the stress–well-being–productivity process.

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