

The invisible health risks of precarious employment

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ABSTRACT

This article reports a new conceptual approach to measuring the characteristics of precarious employment and their effect on health. Our starting point is the Karasek 'job strain' model. We argue that 'job strain' focuses on the health effects of work once people are employed. It is less effective in capturing the health effects associated with the employment relationship, the process by which workers acquire work, keep work and negotiate its terms and conditions. We develop a new construct, 'employment strain' to measure these aspects of work organisation. Evidence presented indicates employment strain is associated with poorer health outcomes.

Introduction

This study explores the nature of precarious employment relationships, with a particular focus on understanding their impact on health outcomes. A number of studies have focused on how precarious employment relationships alter exposure to physical risks such as noise and toxins, or the psychosocial work environment including control over work and workload (Benach et.al. 2002b; Goudswaard & Andries 2002; Saloniemi et.al. 2004; D'Souza et.al. 2003). This paper takes a different approach and suggests that the employment relationship itself is a source of exposures that can affect health. To explore this hypothesis we introduce a new concept of 'employment strain.' Employment strain is a multi-factor measure of the control, workload and support characteristics of an employment relationship. This paper will focus on the development of this new construct and report results from a first wave of fieldwork.

Our point of departure is the Karasek Job Demand-Control (JD-C) model and the concept of 'job strain' (Karasek and Theorell 1990). Job strain is found when jobs provide low levels of control over how work is done while at the same time requiring high expenditures of psychosocial effort to complete assigned tasks. Studies show that workers exposed to job strain are more likely to be exhausted, depressed and dissatisfied with their job, and they are more likely to have stress-related illness and cardiovascular disease (Belkic et al. 2000; Karasek and Theorell 1990). Other studies have shown that chronic exposure to job strain increases blood pressure (Schnall et al. 1998).

A central argument of this paper is that Karasek's job strain captures only one dimension of the control-demand-support trilogy at work, that being the dimension associated with the work process and the production of goods and services. We argue that the control-demand-support trilogy associated with the employment relationship is equally important, and that this trilogy has become more relevant with the spread of precarious employment relationships.

How might the employment relationship affect the control, effort and support characteristics of work? The employment relationship shapes the level of control workers have over access to employment and the setting of its terms and conditions. It influences the amount of effort required searching for employment, the effort expended to keep employment, exposure to harassment and discrimination, and the effort required balancing demands related to multiple job holdings at multiple sites. The employment relationship shapes support in three ways. First, the temporary nature of employment relationships influences the relationship between worker and employer, and between workers and levels of support at work. Second, it influences household relations and the ability to satisfy domestic needs. Third, the variability of work demands and irregular schedules can affect the relationship between workers and their community.

Those working within the 'job strain' framework have become increasingly aware of the limitations of the original control and workload constructs proposed by Karasek and the need to consider the employment relationship as a factor affecting health outcomes (Wall, T., et.al. 1995; Sparks & Cooper 1999; de Jonge, J., et al. 1999; Benach et.al. 2002a). In particular, models need to incorporate what Cooper has called the shift to a 'short-term contract culture' or the spread of precarious employment (Cooper 2002). Quinlan, Mayhew, and Bohle (2001) suggest adding 'precarious' dimensions to the understanding of job control and using this to explore the relationship between precarious work and health outcomes. Benach et.al. (2002b) point towards the importance of including the employment relationship in any analysis of work and health. Their work based on European Union data concludes that the employment relationship may have an independent effect on health outcomes, regardless of differences in working conditions. Other studies have shown that job strain and high job insecurity are independently associated with a number of mental health outcomes (D'Souza et.al. 2003).

Our challenge was to design a study that captured the characteristics of the employment relationship and in particular precarious employment relationships. To do this we needed to find indicators that went beyond those useful in the study of work organisation at individual workplaces, where employment is full-time, where workers have a permanent and ongoing employment relationship, and where the terms and conditions of employment are either contractually defined or based on well established customs and norms. To incorporate the employment relationship into work organisation models we define new indicators of control, workload and support. Together they make up a new work organisation construct 'employment strain'. Employment strain is not a substitute for Karasek's job strain construct. Rather, employment strain captures a unique dimension of the employment experience. Details of this new construct and how we propose to measure it are provided in what follows.

Serious investigation of the health and safety consequences of precarious employment is quite recent. The evidence suggests a complex association between the employment relationship and exposure to physical and job strain risks, and health. A number of studies suggest that workers in some precarious employment relationships are more likely to be exposed to physical situations that increase the risk of work related injury or illness (Quinlan 1999, Quinlan, Mayhew, and Bohle 2001). Precarious employment was associated with poorer health outcomes in a study of German workers (Rodriguez 2002) but no effect was found in a study of British workers (Bardasi & Francesconi 2004) or a sample of Finnish workers (Virtanen et.al. 2002). Studies based on a sample of European Union workers found some workers in precarious employment relationships face certain kinds of high-risk physical working conditions. However, some forms of non-standard employment can be protective: part-time workers report being exposed to fewer physical hazards, and less intensity of work (Benavides & Benach 1999; Benach et.al. 2002b; Pedersen et.al. 2003; Goudswaard & Andries 2002; Daubas-Letourneux & Thébaud-Mony 2003). Research on Finnish workers challenges the simple notion that precarious employment is always associated with poorer psychosocial working conditions (Saloniemi et.al. 2004).

In summary, these studies suggest various reasons why workers in precarious employment relationships may experience work related health problems. However, at the same time these studies suggest that on some measures of health outcomes, workers in standard employment relationships report the worst outcomes. These studies do point the way to a deeper understanding of how the employment relationship might affect health outcomes. They suggest that insecurity, continuous evaluation, frequent changes in worksites and work colleagues, frequent bouts of unemployment, unpredictability of work schedules and earnings, poor living conditions and differences in coverage of social regulations related to precarious employment may play an important role in understanding the health outcomes of these workers.

Employment relationship health risks and precarious employment

The core of our hypothesis is that focusing on the work-related health risks of precarious employment (eg. physical risks, exposure to toxins and job strain) ignores a second source of work-related health risks associated with the employment relationship. The growth of precarious employment re-problematizes the employment relationship as a source of work-related health risks. While there are health risks present in all employment relationships, studies

that assume the standard employment relationship have not made them visible. The differences in the rights enjoyed by those in precarious employment relationships and standard employment relationships leads us to argue there is a second pathway between work and health outcomes, fundamentally different from the production process based pathway examined by Karasek. This alternative set of risks can be described as employment strain.

While employment strain is a hazard all workers face related to the nature of their employment relationship, these risks are likely to be higher for those in precarious employment relationships. Those in precarious employment may face increased uncertainty over access to future employment and the terms and conditions of employment. They may experience added demands associated with the constant search for new employment and the need to balance multiple employers and worksites. Added demands related to ensuring a positive employer assessment of work performance needed to increase the probability of being offered more work. They may face increased uncertainty over the ability to satisfy minimum household economic demands as a result of low pay, limited benefits and high levels of variance in earnings. Or they may enjoy reduced levels of social support and increased risk of harassment from employers and co-workers as a result of the temporary nature of social relations.

Measuring employment strain

To measure employment strain we designed a fixed response self-administered survey. Between 2002 and 2004 we received surveys from 800 Canadian workers. Those who had not worked in the last month were dropped from the sample leaving 786 surveys with useable data. The sample is composed of workers who responded to ads placed in newspapers; employees of a temporary agency; homecare workers; university workers; community workers and a diverse group found through employment agencies and worker-based groups in Toronto. Some of the sample was recruited through unions.

We used the survey questions to construct new measures of control, workload and support related to the employment relationship. Together these constructs measure employment strain. Details of these new constructs and how they are measured are provided below.

EMPLOYMENT RELATIONSHIP UNCERTAINTY: We define three types of uncertainty associated with the employment relationship; *work uncertainty*, *earnings uncertainty* and *scheduling uncertainty*. High levels of uncertainty are synonymous with low levels of control. *Employment relationship uncertainty* is calculated by summing the values of the questions representing its three components described below.

Work uncertainty measures the level of control over future employment and the frequency with which employment terms are re-negotiated. All employment in a competitive labour market is uncertain, but for those involved in precarious employment, the degree of uncertainty is qualitatively different. In the absence of an ongoing relationship with an employer or contractually defined rights to further employment, workers in precarious employment relationships face a high degree of uncertainty over getting more work. *Work uncertainty* includes two questions on respondents' perceived uncertainty about whether current employers will offer more work and average contract length.

Earnings uncertainty measures the level of control workers have over future earnings. It includes seven questions on whether the worker can predict future earnings, the existence of written pay records, whether unemployment insurance and government pensions are deducted from earnings, whether workers are paid when they are sick, whether they are paid on time, and whether they have disability insurance and pension entitlements.

Scheduling uncertainty measures the control workers have over when and where they work. It is constructed from three questions about the length of advance notice of work schedules, hours to be worked and work location.

EMPLOYMENT RELATIONSHIP WORKLOAD: We define four types of workload associated with the employment relationship; *effort finding work*; *multiple employers/worksites effort*; *constant evaluation effort*, *harassment and discrimination effort*. *Employment relationship workload* is calculated by summing the values of the questions representing its four components described below.

Effort finding work measures time spent looking for work. For workers in standard employment relationships this is unlikely to be significant, however for non-permanent workers this may require significant effort. *Effort finding work* is calculated from a single question asking how much time individuals spend looking for work.

Multiple employers/worksites effort measures the effort expended as a result of having multiple employers and working at multiple worksites. It combines eight questions about the number of employers, supervisors and work locations, unpaid time spent traveling between jobs, frequency of working with new sets of co-workers in unfamiliar locations, and conflicts arising from having multiple employers or work locations. Again, these are effort expenditures most likely to be incurred by workers in temporary positions.

Constant evaluation effort measures the effort expended by workers trying to increase the probability that their current employer will offer them more work. Where contracts are short-term in nature, workers may feel they are constantly being evaluated and have to perform at levels beyond that expected of workers in standard employment relationships. A Finnish study revealed that this was one of the negative aspects associated with precarious employment (Pedersen et.al. 2003). *Constant evaluation effort* includes three questions about the extent to which attitude and performance evaluations affect the length and nature of future work offers.

Harassment and discrimination effort measures the effort expended as a result to exposure to harassment and discrimination at work. Where employment is temporary and change of employers and locations frequent, the probability of facing harassment and discrimination may increase. *Harassment and discrimination effort* includes five questions about the frequency of harassment at work, the frequency discrimination is a barrier to getting work or how one is treated at work, the role of favoritism in getting work, and the frequency of being asked to do things unrelated to work.

Employment relationship support

We define three types of employment relationship support; *work support*, *household insecurity and social support*. *Work support* measures the support workers receive at work. It combines four questions about the availability of help with a job, assistance at work if a worker is stressed, the presence of a union and its effectiveness. *Household insecurity* measures the capacity of an individual to satisfy household economic needs. Low levels of household insecurity may make it easier for a worker to handle low levels of control and high levels of effort associated with their particular employment relationship. It combines 3 questions regarding individual and household earnings, and household benefit coverage (drug, medical, dental, eye, life). *Social support* measures the support an individual has in the community at large. It combines four questions about whether an individual has access to someone who provides emotional, practical or financial support in a crisis situation, and questions asking if they can draw on the support of friends & family, people in their neighbourhood, or in their community to deal with problems they might face.

Employment strain and health outcomes

In the tables that follow, we examine four different clusters of employment relationships; three representing different forms of precarious employment and one representing the standard employment relationship. The temporary agency and short-term contract cluster is made up of workers employed through temporary employment agencies, or who work on short-term contracts, are self-employed or work seasonally. This group is the most representative of the segment of the labour market that has increased dramatically since the early 1980s. The part-time cluster is made up of workers who reported having a permanent part-time job of less than 30 hours per week. The on-call cluster is a class of workers who have an ongoing relationship with an employer, either full-time or part-time, but whose hours vary from week to week based on the employer's needs. The full-time cluster includes workers in permanent positions who work 30 or more hours per week.

The characteristics of the sample are reported in Table 1. Interestingly, the two groups with the most dramatic difference in their employment relationships, the temporary agency cluster and the full-time cluster, were demographically very similar in this sample, except that the temporary agency workers were more highly educated, but earned less.

TABLE 1
Socio-economic characteristics of sample by employment relationship

| | <i>Types of Precarious Employment</i> | | | |
|------------------------------------|---|------------------|----------------|------------------|
| | <i>Temp agency & short-term contracts</i> | <i>Part-time</i> | <i>On-call</i> | <i>Full-time</i> |
| Average age (years) | 34.9 | 32.0 | 47.0 | 36.5 |
| Female (%) | 50 | 74 | 89 | 55 |
| White (%) | 63 | 52 | 79 | 69 |
| Lived in Canada < 5 years (%) | 12 | 14 | 1 | 9 |
| Some university (%) | 47 | 38 | 8 | 29 |
| Own income <\$25,000 (%) | 76 | 89 | 82 | 47 |
| Household income <\$35,000(%) | 63 | 59 | 50 | 35 |
| No employment benefits (%) | 58 | 54 | 42 | 29 |
| Full-time student (%) | 13 | 29 | 2 | 4 |
| Union member in all workplaces (%) | 11 | 17 | 74 | 26 |
| Hours last two weeks | 105 | 73 | 122 | 155 |
| Occupation/sector: | 29 | 8 | 5 | 29 |
| Factory work (%) | | | | |
| Clerical (%) | 23 | 15 | 10 | 22 |
| Education (%) | 23 | 15 | 1 | 24 |
| Health (%) | 10 | 19 | 79 | 10 |
| number of observations | 389 | 126 | 150 | 121 |

Table 2 reports our findings about the extent to which employment uncertainty, effort and support are experienced differently by workers in different employment relationships. In general, the three precarious clusters reported higher levels of employment relationship uncertainty and employment relationship workload, higher levels of household insecurity and lower levels of work and social support than the full-time cluster. This was particularly true of temporary agency and short-term contract workers.

TABLE 2
Components of employment strain by employment relationship (Index scores range from 0 to 100 where higher scores indicate higher uncertainty and insecurity, more effort and more support.)

| | <i>Types of Precarious Employment</i> | | | |
|--|---|------------------|----------------|------------------|
| | <i>Temp agency & short-term contracts</i> | <i>Part-time</i> | <i>On-call</i> | <i>Full-time</i> |
| Employment relationship uncertainty | 50 | 41 | 43 | 28 |
| Work uncertainty | 43 | 24 | 11 | 7 |
| Earnings uncertainty | 58 | 54 | 51 | 36 |
| Scheduling uncertainty | 38 | 22 | 52 | 26 |
| Employment relationship workload | 37 | 34 | 35 | 26 |
| Effort getting work | 38 | 38 | 9 | 9 |
| Multiple employers/worksites effort | 34 | 26 | 34 | 18 |
| Constant evaluation effort | 35 | 31 | 37 | 27 |
| Harassment/discrimination effort | 43 | 48 | 37 | 37 |
| Household Insecurity | 66 | 64 | 52 | 36 |
| Work Support | 24 | 29 | 40 | 29 |
| Social Support | 49 | 51 | 57 | 56 |

Table 3 reports results of our analysis of the relationship between employment relationship characteristics and health outcomes. Each cell represents the change in the odds ratio (the relative probability) of a specific health indicator caused by a ten point increase in the relevant employment relationship index after controlling for differences in age, sex, physical work environment and prior health status. Numbers greater than one represent increased odds of reporting the relevant health outcome.

TABLE 3

Employment relationship characteristics and health outcomes (Figures represent the change in the odds-ratios associated with a ten point increase in the relevant employment relationship index.)

| | <i>Health less than very good</i> | <i>Pain half the time or more</i> | <i>Exhausted after work most days</i> | <i>Tense half the time or more</i> | <i>Everything an effort most of the time</i> |
|--|-----------------------------------|-----------------------------------|---------------------------------------|------------------------------------|--|
| Employment relationship uncertainty | 1.10 (**) | 1.07 | 1.07 | 1.10 (**) | 1.13 (**) |
| Work uncertainty | 1.04 | 0.98 | 0.99 | 1.01 | 0.98 |
| Earnings Uncertainty | 1.11 (**) | 1.06 | 1.01 | 1.06 | 1.11 (**) |
| Scheduling Uncertainty | 1.05 (**) | 1.06 (**) | 1.07 (**) | 1.06 (**) | 1.07 (**) |
| Employment relationship effort | 1.13 (**) | 1.20 (**) | 1.28 (***) | 1.39 (***) | 1.14 (**) |
| Effort Getting Work | 1.02 | 1.02 | 1.01 | 1.02 | 1.05 (**) |
| Effort Multiple Employers/Sites | 1.01 | 1.08 (*) | 1.19 (***) | 1.21 (***) | 1.09 (**) |
| Constant Evaluation Effort | 1.04 (*) | 1.05 (**) | 1.06 (**) | 1.08 (**) | 1.05 (**) |
| Harassment/Discrimination Effort | 1.13 (***) | 1.16 (***) | 1.15 (***) | 1.24 (***) | 1.02 |
| Household Insecurity | 1.09 (***) | 1.10 (**) | 1.01 | 1.04 | 1.03 |
| Work Support | 0.82 (***) | 0.86 (***) | 0.92 (**) | 0.80 (***) | 0.94 |
| Social Support | 0.91 (***) | 0.99 | 0.93 (**) | 0.92 (***) | 0.95 (*) |

*** p<.001, **, p<.05, * p<.10; n ranges from 645-729

model: health index_j = f(age, sex, white, prior health status, work environment, work index.)

Greater employment relationship uncertainty, and in particular greater uncertainties related to scheduling and earnings, were correlated with poorer self-reported health, more frequent tension at work, and more frequent reporting that 'everything was an effort.' A ten percentage point increase in employment relationship uncertainty increased the likelihood by about the same amount that workers reported less than excellent health, tension at work, or that 'everything was an effort.' Greater employment relationship uncertainty was not, however, significantly correlated with reports of working in pain or exhaustion. This supports the argument made above that the effect of the employment relationship on the physical characteristics of work varies and that precarious employment may not systematically be correlated with poorer physical working conditions.

Increased employment relationship effort was associated with poorer health status. This was particularly true for the effort it takes to handle multiple employers/sites, constant evaluation, and harassment/discrimination. The association was particularly strong between employment relationship effort and tension at work. A ten percentage point increase in employment relationship effort increased the likelihood that workers would report tension at work by forty percentage points. We did not find a statistically significant relationship between the effort individuals expend finding work and health outcomes.

We found that workers with greater household insecurity were more likely to report poorer health status and working in pain. Increases in employment related support were significantly correlated with better health outcomes on all the measures of health status, except the indicator of 'everything an effort most of the time'. Higher social support was correlated with better self-reported health, less exhaustion and lower levels of tension.

These results suggest that even after correcting for differences in age, sex, race, physical work environment and prior health problems, those characteristics of the employment relationship associated with temporary employment are correlated with poorer health outcomes. When workers have higher levels of employment relationship uncertainty and higher levels of employment relationship workload they are more likely to have poorer health status, particularly tension at work. Workers who have stronger work and social support and less household insecurity are more likely to have better health status.

Employment strain and health outcomes

In this final section of the paper we examine how the interaction between employment relationship uncertainty and employment relationship workload affect health outcomes. Employment strain was defined as having high scores on both the employment relationship uncertainty index and the employment relationship workload index. Median scores were used as the cut points for determining employment strain; high employment relationship uncertainty (46.2) and high employment relationship workload (35.3). In our sample, 45 percent of the temporary cluster, 34 percent of the part-time cluster, 30 percent of the on-call cluster and 21 percent of the full-time cluster were exposed to employment strain. This suggests that working full-time significantly reduces the risk of being exposed to employment strain relative to temporary agency workers, but does not eliminate it. Table 4 reports the relationship between employment strain and health outcomes correcting for the effects of age, sex, race, physical work environment and prior health status. In each case, employment strain was associated with poorer health outcomes. These associations were statistically significant in the case of exhausted after work most days and tense half the time or more. In both cases those exposed to employment strain were more than twice as likely to report these two conditions relative to those not exposed to employment strain.

TABLE 4
Employment strain and health outcomes (Figures represent the change in the odds-ratios associated with being exposed to employment strain.)

| | Odds-ratio |
|---------------------------------------|-------------------|
| Health less than very good | 1.25 |
| Pain half the time or more | 1.27 |
| Exhausted after work most days | 2.12 (***) |
| Tense half the time or more | 2.30 (***) |
| Everything an effort most of the time | 1.50(*) |

*** p<.001, **, p<.05, * p<.10; n 603-612

model: health index_i = f(age, sex, white, prior health status, work environment, employment strain).

Conclusions

The objective of this paper was to explore the relationship between the employment relationship and health outcomes. We proposed a set of indices that measure employment relationship uncertainty, employment relationship workload, household insecurity and work and social support. Workers in precarious employment relationships reported more employment relationship uncertainty, more employment relationship workload, more household insecurity and generally lower levels of support, although the later showed a less clear pattern across the four types of employment relationship explored in this paper. We tested the relationship between the characteristics of the employment relationship and health outcomes. We found poorer reported health outcomes as employment relationship uncertainty and employment relationship workload increased, and levels of support were reduced. The association was strongest with measures of overall health, tension and 'everything was an effort' and weaker with measures of pain and exhaustion. These results suggest that the spread of precarious employment relationships may have implications beyond the level of security enjoyed by workers, their standards of living and levels of social cohesion. These forms of employment may also affect population health, an issue to which researchers and policy makers may want to pay more attention.

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