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Abstract

Background: Research on the relationship between overtime and psychological well-being, and workers' perceptions of the factors that determine overtime, has been conducted exclusively in the Western cultural context.

Aims: To examine whether existing theory and evidence can be applied to a non-Western cultural setting by investigating the constructs among a sample of office workers drawn from a Chinese branch of an international information and communication technology company.

Methods: Data were collected from 130 full-time employees on overtime hours worked, psychological well-being, and four variables identified by participants as being important determinants of overtime: job demands, intrinsic motivation, anticipated rewards, and overtime work culture. T-tests and multiple linear regression analyses were used to examine the relationship between variables.

Results: All study participants had worked overtime in the previous 6 months period; the mean weekly overtime rate was 14.2 h. High overtime employees demonstrated significantly lower levels of psychological well-being than those who worked low levels of overtime. In combination, the four reasons for working overtime predicted approximately one-fifth of the variance in overtime hours worked, suggesting that knowledge of these variables could be used by practitioners to predict the amount of overtime in which workers are likely to engage.

Conclusions: The findings suggest that existing theory and evidence may apply beyond the individualist cultural context. The findings might usefully inform the organization of work in collectivist cultures and the implementation of multinational operations in these cultures.

Key words China; effort-recovery; overtime; well-being.

Introduction

Previous research has shown that overtime, defined broadly in terms of ‘the difference between the total number of hours worked and the number of hours one is required to work according to one’s employment contract’ [1], can be detrimental to psychological wellbeing [1]. Previous research has typically investigated the overtime–well-being relationship in terms of Effort-Recovery theory [2] which proposes that effort expenditure (work) is associated with short-term costs (e.g. accelerated heart rate and fatigue) that usually diminish following a recovery period. Where opportunities for recovery are insufficient, a process of fatigue accumulation begins that may impair well-being and lead to chronic health problems. All existing studies of the overtime–well-being relationship have emanated from North-West European countries. As a result, knowledge on this topic is derived from an individualist cultural context that involves loose bonds between individuals ‘who view themselves as independent of collectives; are primarily motivated by their own preferences, needs, [and] rights, . . . and emphasize the rational analysis of the advantages and disadvantages to associating with others’ [3]. An important gap in the literature concerns the nature of the overtime–well-being relationship in the collectivist cultural context where individuals typically ‘see themselves as parts of one or more collectives (family, co-workers, tribe, nation); are primarily motivated by the norms of, and duties imposed by, those collectives; ... and emphasize their connectedness to members of these collectives’ [4]. The present study addresses this lack of evidence by investigating the relationship between overtime and psychological well-being in a sample of Chinese information and communication technology (ICT) sector office workers where high levels of overtime are common [5]. The outcome of this research may help inform policy and process in multinational organizations operating in collectivist settings.

The study investigated two specific hypotheses: that employees who report high levels of overtime will present with low psychological well-being scores relative to employees who report low levels of overtime and that job demands, intrinsic motivation to work overtime, anticipated rewards for working overtime and overtime work culture will, in combination, account for the number of hours of overtime worked.

Methods

Ethical approval for the study was granted by the Research Committee of the Institute of Work, Health and Organisations at the University of Nottingham. All fulltime office workers who worked in a mainland Chinese branch of an international ICT company were sent an email by the researchers to introduce the study. Questionnaires were subsequently distributed by the human resources department along with a pre-paid envelope in which questionnaires were returned directly to the researchers. Company-imposed restrictions on opportunities to issue employees with questionnaire-completion reminders, along with the unavailability of data on non-responders, rendered it impossible to draw conclusions on sample representativeness.

Ten semi-structured interviews were conducted among a sample of office-based employees (managers and non-managers) from the branch to identify the primary reasons for engagement in overtime work. Four clusters of reasons were identified: job demands, intrinsic motivation to work overtime, anticipated rewards for working overtime and overtime work culture. The interviews informed the design of a questionnaire that was piloted to establish its face validity prior to distribution.

Psychological well-being (two factors: exhaustion and tension) was measured using the 24-item General Well-Being Questionnaire (GWBQ) [6]. The GWBQ has good concurrent validity with regard to other measures of general health, overt ill-health and

fatigue in different group settings and is a reliable instrument when used in work-related health research [7–9]. Data were also collected on overtime hours worked per week, gender, age and managerial versus non-managerial status.

In line with previous overtime studies, overtime was dichotomized on the basis of a median split into high and low levels of overtime. Independent t-tests were used to investigate possible differences in well-being between these groups. Multiple linear regression analysis was performed to examine the variance in overtime hours worked accounted for by the four reasons for working overtime.

Results

Data were collected for 130 workers (65% response rate). Participants ranged in age from 23 to 44 [mean (M) = 31.4; SD = 5.2], 75 (58%) were females, 94 (72%) were non-managers and all held a university undergraduate degree (see Table 1). All participants reported that they had worked overtime in the previous 6 months period. Overtime hours worked per week ranged from 2 to 30 h (M = 14.2, SD = 7.8). Males worked significantly more overtime than females ($t = 3.75$; $P = 0.01$) and managers significantly more than non-managers ($t = 3.68$; $P = 0.01$).

Scores on the first general well-being factor (exhaustion) ranged from 6 to 38 out of a maximum score of 48 (M = 21.7, SD = 6.4). Scores on the second general well-being factor (tension) ranged from 2 to 30 out of a maximum score of 48 (M = 15.0, SD = 5.5). Pearson's correlations showed moderate but statistically significant positive associations between overtime hours worked and the two well-being factors: exhaustion ($r = 0.20$; $P = 0.05$) and tension ($r = 0.15$; $P = 0.05$). Table 2 shows scores on well-being indicators for employees who reported high levels of overtime and employees who reported low levels of overtime. High overtime was associated with significantly higher worn out scores than low overtime (P

, 0.05). Up-tight scores were slightly higher in the high overtime group than in the low overtime group but the difference was not statistically significant.

Overtime hours worked were regressed on the four predictor variables. A significant model emerged ($F = 8.19$, $P = 0.001$). The total set of four variables explained 18% of the variance in overtime hours worked. Job demands ($\beta = 0.38$, $P = 0.001$) were the most influential predictor, followed by intrinsic motivation to work overtime ($\beta = 0.16$, $P = 0.01$). Anticipated rewards for working overtime and overtime work culture did not significantly predict overtime.

Discussion

This study showed that in a sample of Chinese ICT sector office workers, high overtime was associated with low well-being. There was a significant difference between the high overtime group and the low overtime group in terms of their scores on the first well-being factor (exhaustion), though not in terms of the second (tension). Intrinsic motivation, job demands, anticipated rewards and overtime work culture were found, in combination, to account for almost one-fifth of the variance in overtime hours worked, suggesting that practitioners might use knowledge of these variables to predict the amount of overtime in which workers are likely to engage. Findings were consistent with those of previous studies that involved North-West European populations [1], suggesting that current Western theory and evidence might apply beyond the individualist cultural context.

One of the limitations of this study is that it is possible that studies of overtime attract responses from those who typically work high levels of overtime, although, equally, the opposite might be the case. This study's cross-sectional design precludes definitive conclusions on the relationship between overtime and well-being. Furthermore, the restricted sample size, along with the possibility that the company might have an organizational culture

that is atypical for the sector by virtue of its international ownership, prevents the assertion that the results are representative of office workers in the ICT sector in China. Nevertheless, the results highlight the potential for organizational overtime policies and practices as tools in the promotion of performance, productivity and psychological well-being in the collectivist cultural context. Guidance in this area is likely to be particularly helpful at a point in its economic development when improved productivity and employee performance are critical to Chinese competitiveness. Research on the relationship between overtime and health in China is in its early stages; large-scale longitudinal studies are warranted to further evaluate the health implications of overtime work within this cultural context. In particular, the well-being implications of voluntary versus involuntary overtime warrant investigation. Previous Dutch research showed that involuntary overtime work was associated with relatively high fatigue and low job satisfaction [10]; whether the same might hold true in a collectivist setting remains to be examined. Such research will valuably inform the design of work schedules for the promotion of occupational health and performance.

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Table 1

Means (M), standard deviations (SD), and correlations between variables ($N = 130$).

Variables	M	SD	1	2	3	4	5	6
1. Overtime	14.2	7.8						
2. Intrinsic motivation	23.4	5.7	0.2*					
3. Job demands	13.8	3.1	0.4**	0.0				
4. Rewards	4.6	2.2	0.1	-0.1	0.0			
5. Overtime culture	6.1	1.5	0.2**	-0.1	0.2**	0.3**		
6. Exhaustion	21.7	6.4	0.2*	-0.3**	0.3**	0.1	0.3**	
7. Tension	15.0	5.5	0.2*	-0.1	0.2*	0.2*	0.2*	0.8**

* $P < 0.05$; ** $P < 0.01$.

Table 2. Psychological wellbeing indicators for employees reporting low or high levels of overtime, including means (M) and standard deviations (SD).

	Low overtime	High overtime	<i>t</i> (df)	<i>p</i>
	≤ 14 hours per week (<i>n</i> = 58)	≥ 15 hours per week (<i>n</i> = 72)		
Worn Out: M (SD)	20.4 (5.9)	22.8 (6.7)	-2.2 (129)	< 0.05
Up Tight: M (SD)	14.2 (5.5)	15.6 (5.5)	-1.5 (129)	NS

d.f., degrees of freedom.

Key points

- Evidence on the relationship between overtime and psychological well-being, and the drivers of overtime, has derived exclusively from North-West Europe.
- Chinese office-based information and communication technology sector workers were shown to work high levels of overtime, and high overtime was associated with low levels of psychological well-being.
- Extant knowledge on the relationship between overtime and well-being may apply in the collectivist cultural context where it might usefully inform organizational overtime policies and practices.