The Psychological Impact of Teleworking: Stress, Emotions and Health

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The psychological impact of teleworking: stress, emotions and health*

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The paper examines the psychological impact of teleworking compared to office-based work. Results suggest a negative emotional impact of teleworking, particularly in terms of such emotions as loneliness, irritability, worry and guilt, and that teleworkers experience significantly more mental health symptoms of stress than office-workers and slightly more physical health symptoms.

Overview

The aim of this paper is to examine the psychological impact of teleworking in terms of its effects on (1) the emotions and (2) the stress and health of the teleworker when compared to the office-based worker. Two studies are presented: Study 1, which is qualitative and interview-based, addresses the first aim by comparing the emotional impact of work patterns on teleworking and office-based journalists. Study 2 uses a quantitative questionnaire-based design to address the second aim by comparing the occupational stress and health symptoms of office-workers and teleworkers. Before the current research is presented, a brief overview of teleworking and its currently understood benefits and problems are discussed.

Telework: a brief history

The concept of teleworking, defined as 'work carried out in a location where, remote from central offices or production facilities, the worker has no personal contact with co-workers there, but is able to communicate with them using new technology,' (Di Martino and Wirth, 1990: 530) was originally attributed to the oil crisis of the 1970s,

when it was observed that 'if just 1 in 7 urban commuters dropped out, the US would have no need to import oil' (Jack Niles, Centre for Futures Research in California, in Burch, 1991: 19). During that period in which some employees did carry out their work remotely, further advantages were discovered (Burch, 1991). Quite simply, the oil crisis of the mid 1970s showed that teleworking could provide a 'flexibility in the provision of work [which] can benefit organizations and individuals' (Burch, 1991: 18).

Benefits of telework

The benefits of teleworking have been consistently cited in much empirical research and review articles (e.g. Jenson, 1994; Mann *et al.*, 2000; Montreuil and Lippel, 2003). Most of these allude to the practical benefits and include:

(1) Better balance of home and work life
Workers are able to spend less time away from home and thus use the time which they might otherwise have wasted on travelling or being in the office, with their family or children. They can also cope better with mini domestic crises and be in for the washing machine repairman etc.

(2) Increased flexibility
Teleworkers can often (but not always) choose the hours they work, enabling them to take advantage of off-peak supermarket shopping or gym membership, to collect the kids from school, or simply of working at times when they are more productive. Participants in Mann *et al.*'s (2000) study pointed out that the flexibility comes from the freedom of managing one's own time. There is also the freedom and flexibility of being able to work from home for more than one employer, or being able to gain work even if there is difficulty getting to the office due to disability, rural home locations or caring responsibilities.

(3) Reduction in commuting
The reduction in commuting has potential positive impacts on cost, time and stress and may be the primary reason that workers choose to telework.

(4) Reduced overheads for employer
A recent experiment in teleworking at the British Broadcasting Corporation (BBC) yielded savings of around 25 per cent (Loughran, 1998). Companies make these savings by reducing the need for expensive office space and overheads such as heating, electricity and wear and tear.

(5) Increased skill base for employer
Organisations with teleworking schemes are able to take advantage of a labour market of skilled personnel who are not necessarily able to work full-time from a conventional office environment, such as the disabled, or those with childcare or eldercare responsibilities.

(6) Increased productivity
The popular literature (e.g. Montreuil and Lippel, 2003) documents higher productivity among teleworkers than other workers and this higher performance level is attributed to fewer interruptions, longer working hours and the flexibility when planning work schedules. Furthermore, as most people engage in telework by choice, they tend to be more motivated to prove that this alternative mode of work is successful. However, it should be pointed out that with few exceptions (e.g. DuBrin, 1991), accounts of increased productivity under telework are derived from self-report data.

Because most teleworkers volunteer or request to work from home, they might be biased to claim success in order to prove that their chosen method is effective.

Problems of telework

A wide range of problems associated with teleworking have been documented. These include:

(1) Social isolation
Social isolation is the most frequently cited disadvantage of teleworking; a survey in the United Kingdom in 1983 reported that 60 per cent of teleworkers named this as the greatest disadvantage (Huws, 1984). Something new to emerge from Mann *et al.*'s (2000) study was the issue of a social comparison effect that is provided by being with others. That is, the participants suggested that we look to others to give us some idea of how we ought to be behaving—we use other people as social barometers. The reduction of this barometer or measure of ourselves is significant for teleworkers.

(2) Presenteeism
Presenteeism is not just about working long hours, but also working when sick; the available published data generally indicate a drop in absenteeism amongst teleworkers as workers may, for example, take a morning off when ill rather than a full day, return to work when not fully recovered—or take no time off at all (cited in Montreuil and Lippel, 2003). Whilst this may be something that managers see as an advantage, it is clearly not in the best interests of the employee to work through illness or not take enough time to recover properly.

   This problem of 'presenteeism', whereby people feel unable to take time off from work because of sickness, is, of course, a prevailing problem for all workers in today's climate of job insecurity, not just teleworkers (Clark, 1994). However, the extra dimension for teleworkers is that no one can see how ill they are. Many workers may also feel that they must work even when sick in order to dispel their employer's doubts regarding telework (to maintain the 'privilege' of telework). Of course, it is likely that the quality of work is negatively impacted on too, when people work whilst sick.

(3) Lack of support
Technical support issues are a major concern for teleworkers. It is hard enough to provide the required level of technical support for personal computers in a managed office environment, but for the nomadic teleworker, the failure of the mobile office is rather more catastrophic. Support, according to one source, is the 'key to successful teleworking' (Gray, 1995: 106).

(4) Career progression
Career marginalisation as 'visibility and office information networks are key influences on career prospects' (Haddon and Lewis, 1994) has long been recognised as a problem for homeworkers. In addition, teleworkers can become 'politically disadvantaged' as they become 'out of flow' of the political activities such as resource allocation, evaluation, compensation and advancement that make up organizations (Turner, 1998).

(5) Blurring of boundaries
The commute from home to work has traditionally allowed the transition between roles to occur (Hall, 1989, in Ellison, 1999), for example a study by Nilles *et al.* (1976 in Ellison, 1999) found that 60 per cent of their sample workers found commuting a useful break between home and work. Although many teleworkers attempt to develop spatial and temporal boundaries between work and home life, such as creating a room only used for work, working at home does blur the distinction between roles, not only for the teleworker but also for the family (Ellison, 1999).

There is spillover of negative and positive emotions from work to family life and family life to work even in traditional working patterns. Studies of traditional workers have identified problems of work-family conflict, which arise from juggling the different roles of worker and parent (Greenhaus and Beutell, 1985, in Standen *et al.*, 1999). Work-family conflict is a cause of stress and has been related to negative outcomes such as mental and physical ill health (Greenhaus and Beutell, 1985 in Duxbury and Higgins, 1991). Females are especially vulnerable as they are forced to cope with job-related demands which affect their performance of the family role (Duxbury and Higgins, 1991). However, in telework, there is a potential increase in work-family role conflict which could be attributed to the lack of boundaries separating the two roles (Standen *et al.*, 1999) and Bailyn (1988, in Standen *et al.*, 1999) suggested this conflict and stress is increased for teleworkers with care responsibilities. Family support, however, has been shown to decrease physical and mental ill health in office-workers (Beehr and McGrath, 1992 in Standen *et al.*, 1999) and studies of male teleworkers acknowledge emotional support from family members (Olson and Primps, in Standen *et al.*, 1999).

Telework and gender

Bibby (1999) proposed that telework does combine work and home commitments better, but the effect the working pattern has on the individual depends on gender. He suggested that men may take pleasure from the unfamiliarity of working from home and find it easier to overlook the piles of washing. Women, however, may be concerned that teleworking is an alternative way of preventing them from joining the real working world whilst there is an additional problem in that others may perceive that women who telework are not really working; for example, some female respondents in Mann *et al.*'s (2000) study commented that their working at home is not seen as 'real' work and that neighbours and friends felt it was acceptable to ring or pop in when the teleworker was in fact working. They found it harder to accept that a woman who is teleworking is just as much at work as when they go the office. Men did not seem to experience these problems, perhaps because most of their male friends were office-based and thus not around to intrude anyway. It seems that women are also expected to combine other roles when they work from home more than men do; women are more likely to be expected to fit domestic chores around their telework than men are. Hall (1972, in Ellison, 1999) supports this view and proposed that women experience more role conflict as they experience multiple roles simultaneously and as men tend to operate their roles consecutively they will experience less. Olson and Primps (1984, 1990 in Ellison, 1999) confirmed that male teleworkers reported decreased stress levels working from home.

The current research

Recent studies into the impact of teleworking have begun to consider its psychological impact when addressing issues such as isolation, blurring of boundaries and emotional 'spill-over'. However, most studies are still focused on the practical issues such as technical support and legislation because these were thought to be the major issues concerning facilitators of telework (such as technicians, managers etc). However, if telework is to be successful, its impact on psychological health and well-being must be considered so that organisations and individuals can take steps to minimise any potential negative impact. One of the first studies to begin investigating the psychological implications of teleworking was that by Mann *et al.* (2000) which examined its emotional impact. The results of this study suggested that, whilst some of the emotional impact appears to be positive, such as a reduction of travel-related stress or irritation caused by office interruptions, other emotions reported suggested a more negative effect of teleworking; increased loneliness due to the isolation of working away from the office, more frustration due to lack of technical support, more guilt

when calling in sick and more resentment regarding the impact that teleworking has on the home and family life.

Whilst Mann *et al.*'s (2000) study was useful in directing attention towards the psychological impact of teleworking, it suffered from a number of limitations in that it did not compare teleworkers' experiences with those of office-based workers and nor did it explore psychological impact any further than an account of emotional experience.

The current research aims to address these limitations by examining the psychological impact of of teleworking in terms of its effects on (1) emotions and (2) stress and health of teleworkers. The research takes a two-stage approach. Study 1 consists of a qualitative investigation into the emotional effects of teleworking using the same methodology as Mann *et al.* (2000), but comparing teleworkers and office workers (doing the same job). This allows the psychological impact of teleworking in terms of its effects on *emotions* to be explored (the first aim of the current research). Study 2 is a quantitative study aimed at investigating the psychological effects of teleworking on the levels of *stress* and mental and physical *health* symptoms reported by employees (addressing the second aim). The two studies complement each other in that the hypotheses of Study 2 depend on the outcomes of Study 1 since it was expected that negative psychological impact in terms of emotions (Study 1) would correlate with negative psychological impact in terms of stress and poor health (Study 2).

Hypotheses

1. It was predicted that if Study 1 appeared to identify significant negative emotional impact of teleworking on employees, compared to office-based working, this would be supported by higher levels of physical and emotional ill health and stress for the teleworking participants in Study 2. However, it was predicted that if Study 1 appeared to identify significant positive emotional impact of teleworking on employees compared to office-based working this would be supported by lower levels of physical and emotional ill health and stress for the teleworking participants in Study 2.

2. As already discussed females experience more role conflict than males irrespective of the working pattern (Duxbury and Higgins, 1991). Hall (1972) also proposes that male teleworkers will experience less role conflict than female teleworkers and Bibby (1999) states that male teleworkers may feel less stress than male office-workers. Therefore it is predicted that (a) female workers will experience higher levels of mental and physical ill health than male workers and that (b) male teleworkers will experience lower levels of mental and physical ill health than male office-workers.

Study 1

Method

Participants

Suitable jobs for teleworking are those that usually involve a 'degree of autonomy, intrinsic satisfaction, routine communication needs which can be met by existing technologies, clearly defined and agreed work programmes and timescales, . . . and long periods of quiet concentration' (Hobbs and Armstrong, 1998: 217). Pollard (1995) stated that journalists experience a combination of intrinsic factors, for example authority, autonomy and control over work leading to job satisfaction. They also work to tight deadlines, have the technology to work away from the office and the creative aspect of their work benefits from times of quiet application. Therefore journalism meets the criteria for a suitable teleworking job and as one of the top five teleworking occupations (Webb, 1999) participants are available. They are also considered to

be vulnerable to occupational stress due to working under extreme pressure (Furnham, 1997).

The 12 participants were all full-time journalists from Trinity Mirror plc and Times Newspapers Ltd. They were either employed directly or although technically freelance worked predominantly for one employer and were therefore for all practical purposes members of staff. The four male and two female participants from each of the working patterns (teleworking and office-working) followed their specific working pattern for a minimum of three days per week. The teleworking participants had followed this working pattern from three months to 10 years with an average of three years two months out of a total average working time of 17 years 11 months. The office-workers had spent from one year five months to 17 years following their working pattern with the average of nine years two months out of a total average working time of 11 years seven months.

All teleworkers had previously been office-based and had voluntarily chosen to work from a home-base; however the office-working participants had had no opportunity to follow an alternative working pattern. The participants volunteered to take part by way of contact with their editors.

All the teleworkers had an area specifically devoted to their office space and the technological equipment necessary, including PC, e-mail and fax, to carry out their job. The teleworkers had no set time to visit the office and face-to-face contact was minimal. The office-workers worked from traditional newspaper offices and although they spent time outside the office environment to fulfil the requirements of their job the majority of every day was office based.

Procedure

To identify the individual emotional experiences of the teleworkers and office-workers, the data was gathered by taped, semi-structured telephone interviews that lasted between 10 and 20 minutes. The participants were asked eight open-ended questions about their experience of emotions at work (stress, loneliness, enjoyment, irritability, worry, resentment, guilt and frustration) based on the findings of a study carried out on teleworkers by Mann *et al.* (2000). The number of questions was restricted to avoid a fatigue effect. Conducting the interviews on the telephone ensured that the researcher knew less about the respondent, therefore it was easier to assure the participants of confidentiality, and reduced possible interviewer effects. All the participants were ensured that the information was confidential, and were debriefed.

Results

The recorded telephone interviews were transcribed and a manual content analysis of the information was performed. The recognition of specific emotions experienced was recorded and the overall positive or negative emotions expressed towards aspects of the working pattern were identified. Inter-rater reliability was provided by a colleague on a random interview. The reliability was 95 per cent.

The percentage of office-workers and teleworkers who reported experiencing the specific emotions referred to earlier was calculated and is shown in Table 1.

Each of the emotions will be individually examined for the remarks made and the positive and negative emotional impact they appear to have on the office-workers and teleworkers interviewed.

Stress

Both working patterns appear to experience a significant amount of stress with the main reasons associated to job related issues such as deadlines. This evidence supports the position that the role of a journalist is extremely stressful due to the pressure caused by deadlines (Furnham, 1997). However office-workers appeared to experience

	Office-working	Teleworking
Stress	83%	67%
Loneliness	0	67%
Enjoyment	100%	100%
Irritability	83%	100%
Worry	17%	67%
Resentment	67%	67%
Guilt	50%	67%
Frustration	100%	100%

additional stress due to office politics and transport and, as mentioned earlier, studies do suggest that travelling to work increases stress levels (Hobbs and Armstrong, 1998). That office-workers have to commute to work on a daily basis is likely to increase negative emotions such as anger and hostility characteristically related to the stress of transport and travel; for example, in worrying about lost time whilst commuting, fear of being late for work etc. (Montreuil and Lippel, 2003). Teleworkers may also experience a decrease in stress attributable to the perception of having control over their work (environment and work schedules).

Loneliness

Office-workers made comments such as 'I never experience loneliness because of the nature of the job I do. I'm having to talk to people a lot', whereas the teleworkers' comments included 'I feel the need, particularly when I've had a difficult day, to talk to somebody about it and I do feel I'm climbing the walls a bit sometimes', 'I have experienced loneliness . . . and sometimes I just go out to the shops or something just to have face to face interaction with somebody.'

   The teleworkers emphasise the lack of social support available to talk things through which could produce other negative emotions such as feelings of insecurity and lack of confidence in their abilities. The main aspect mentioned was the lack of face-to-face communication. An increased use of computer-mediated communication (CMC) can reduce the feeling of belonging, or the affective bond with the company, which is essential to create loyalty to colleagues and the organisation (Mann *et al.*, 2000). Loneliness was categorically not experienced by office-workers.

Enjoyment

The comments from both office and teleworkers suggest that the intrinsic rewards experienced as journalists are a major reason for their choice of occupation. Enjoyment can be linked to the comparative complexity of the tasks involved and the positive emotional impact appears to be based on feelings of pride; 'Pride,' say Pekrun and Frese (1992: 189) is experienced 'when success is seen to be caused by internal factors (like own ability and/or efforts)'. The challenge demanded of creating a good article and being part of a successful publication fulfils the pre-condition for the experience of pride (Pekrun and Frese, 1992). The intrinsic rewards gained from their employment may motivate teleworkers, to some degree, to overcome negative emotions such as loneliness. For example they may become so involved in a project that the fact they are alone becomes irrelevant. Also office-workers may not experience as much resentment towards travel to work if they are looking forward to their working day.

Irritablility

Negative emotions arising from interruptions, lack of control over situations and people, and technology were common across both working patterns. Experimental research proposes that irritation, and at the more extreme end of these feelings, anger, is often aroused when failures are attributed to others' obstructions (Weiner, Russell and Lerman, in Pekrun and Frese, 1992). Anger, when attributed to another person, can diminish co-operative and project-related behaviour (Weiner, 1980 in Pekrun and Frese, 1992). Teleworkers experience more negative emotions than office-workers relating to this area and one of the main aspects is the irritation caused by being physically distant from the source of any problems. This social isolation can restrict the ability to sort out issues, leading to frustration, and prevent emotional support from fellow workers to help deal with the situations. Another cause of irritation for the teleworkers seems to be the intrusion of family members into work time. This blurring of boundaries between work and home life, as other family members have difficulty in distinguishing the work role from the family role, may lead to feelings of frustration, anger and stress.

Worry

The worry that the office-workers' experience is work related involving the actual practicalities of the job. The main worry for teleworkers seems to be lack of support. This may leave them feeling worried, panicky or fearful regarding their ability to complete a task effectively. Also the worry may be exacerbated by a lack of emotional support, for example a shoulder to cry on provided by a work colleague.

Resentment

'I get resentful because it's very hard to switch off sometimes, especially if you work late' Teleworker.

'Yes [I feel resentful]. You can't even switch off watching the TV or something, you still think you should be up doing something, it's quite hard' Teleworker.

The office-workers and teleworkers both experience negative emotions due to the spillover of work into their family and leisure time which may also affect their levels of satisfaction with the organisation. The ability to effectively manage time is a great source of stress for individuals working independently such as teleworkers (Cooper, 2000). This is further demonstrated by the fact that teleworkers are so physically close to work and find it difficult to switch off.

Guilt

'Yes [I feel guilty] because. . . . I don't feel I see my daughter much because of work' Office-worker.

'I do feel guilty, yes, when I get in and I'm rushing around and I haven't got time to have a conversation properly' Office-worker.

'I feel guilty if I go to the shop to get something in the middle of the day . . . I ought to be at work, so I get guilty about that' Teleworker.

There is little flexibility in the timing of work for office-workers and it is more difficult to balance work and family responsibilities which may create feelings of worry (about giving children enough attention) and stress caused by prioritising work over family issues. Organisations perceive telework as attractive due to expectations of greater productivity and the pressure this creates may contribute to the guilt teleworkers experience if they have control over their work scheduling. This may also lead to worry about achieving deadlines.

Frustration

Lack of support is the main underlying theme causing frustration for both working patterns. Although teleworkers direct the frustration towards technology, office-

workers relate it more to other people. The teleworking journalists are rarely involved in any day to day production processes after the initial creation of their articles. Although this protects them from any emotional impact as a result of conflict with other workers, the lack of control over the finished product and little office contact may lead to decreased feelings of loyalty towards the company and a reduction in psychological well-being (Standen *et al.*, 1999).

Discussion of Study 1

From the results of the qualitative research, regarding the specific emotional states investigated, the findings suggest that, as in Mann *et al.*'s (2000) study, the emotional impact for teleworkers may be more negative than for the office-workers.

Table 1 indicates that there is a greater percentage of teleworkers than office-workers who experience the negative emotions of loneliness, irritability, worry and guilt. The negative emotional impact of loneliness on teleworkers was especially evident and was not experienced at all by the office-workers. There is only one negative emotion, stress, which office-workers report experiencing more than teleworkers. Both teleworkers and office-workers related the emotional impact of stress to the actual job (deadlines and inability to contact people) but office-workers also felt stress effects related to transport and office politics.

The negative emotional impact of the actual job was also related to feelings of resentment and frustration that were experienced equally by the teleworkers and office-workers. Frustration was primarily related to feelings of lack of support, especially about technologically related problems. Working long hours and associated issues generated the main feelings of resentment, with the office-workers describing the culture of long working hours at the office (Keane, 1999) and teleworkers reporting the inability to 'switch off' from work.

Table 1 also shows that enjoyment of the work was equally apparent for the teleworkers and office-workers. The main emotion associated with the feeling of enjoyment was one of pride that was attributed to the participants' own ability and effort. This is a particular characteristic of the journalism profession, relating to aspects of the job such as getting 'a scoop' or the ultimate accolade of the by-line for the front page lead.

Study 1 indicates then that teleworkers seem to experience overall more specific negative emotions than office-workers (as shown in Table 1). Of course, it is not known whether emotions are equivalent in their effects; for example, is the experience of 'stress' equivalent in its effect on an individual as the experience of 'guilt' might be? Study 2 attempts to address this issue by examining the effects of working pattern on mental and physical health. If it is assumed that emotions are equivalent, it ought to be predicted that teleworkers will experience more physical and mental ill health than office-workers in Study 2 (since teleworkers in Study 1 reported more negative emotions). However, since the physical and mental ill health to be measured are thought to be symptoms of stress, and since the teleworkers actually reported less stress than the office-workers in Study 1, a null hypothesis was made.

Study 2

Method

Design

A cross-sectional questionnaire survey was used to compare the occupational stress symptoms experienced by teleworkers and office-workers. Physical health was measured by self-reported frequency of physical symptoms associated with occupational stress. Mental health was measured by the feelings and behaviours that were perceived to be affected by the pressure of the job. Cumulative stressful life experiences can also have an impact on mental and physical health (Johnson and Sarason, 1979). As a control

the recent stressful life events experienced by the respondents were measured to eliminate the participants who were statistically likely to experience major health problems.

Participants

The participants of this study were all journalists from either Trinity Mirror plc or Times Newspapers Ltd (but not the same ones who took part in Study 1). They were either employed directly or although technically freelance worked predominantly for one employer and were therefore virtually members of staff. 32 participants were office based journalists of whom 17 were male and 15 female. They had followed their current working pattern from five months to 34 years and six months for a minimum of three days a week. The mean time spent following their current working pattern was nine years seven months out of a total mean working time of 16 years. The majority of the office-workers were between the ages of 25 and 54.

30 participants were teleworking journalists of whom 16 were males and 14 female. They had followed their current working pattern from three months to 10 years for a minimum of three days a week. The mean time spent following their current working pattern was three years three months out of a total mean working time of 17 years and seven months. The majority of the teleworkers were between the ages of 25 and 44 years.

Various attributes about the participants that may have effected the findings were controlled for: length of time following the working pattern, working status of partner and number of children living at home.

Measures

A shortened version of the Occupational Stress Indicator (OSI) devised by Cooper, Sloan and Williams (1988) was used to identify levels of physical and mental ill health. The scales used were '*How you assess your current state of health*', part A and B. Part A consisted of an 18-item mental health scale related to a series of psychoneurotic symptoms. The items were rated on a six-point Likert-type scale. A high score suggests there is a reduced sense of emotional well-being, with a maximum score of 108. The Cronbach alpha coefficient for this scale was 0.83.

Part B consisted of a 12-item physical ill health scale relating to psychosomatic symptoms. The items were rated on a six-point Likert-type scale with a higher score suggesting there are more symptoms, with a maximum score of 72. The Cronbach alpha coefficient for this scale was 0.78.

The third section consisted of a modified version of the Stressful Life Events Scale (Holmes and Rahe, 1967, in Hayes, 1994). The scale consisted of 34 stressful events that commonly occur in life and participants were asked to indicate which had occurred in the previous six months. Total scores of 300 or more indicate a higher-than-average risk of developing a stress-related illness in the coming months (Gross, 1996) and thus any such participants would be excluded from the analysis.

A fourth section asked respondents to provide information regarding gender, age, working pattern and for how long, as well as total working time.

Procedure

The questionnaires, including an explanatory front cover and a stamped addressed envelope, were posted or delivered by hand to the Editors of the newspaper groups. The questionnaires were distributed by the Editors, who informed the journalists that participation was voluntary. The completed questionnaires were returned by post to the authors' research department by the participants. A number of the questionnaires were posted directly to the teleworking participants who volunteered to take part by contact with their editors. All the participants were assured that the information was confidential and were given contact details regarding the availability of debrief information. 105 questionnaires were sent out and 62 were returned, giving a response rate of 59.1 per cent.

Results

The total scores for each measure for each participant were calculated. The total stress points for each participant on the Stressful Life Events scale ranged from 12 to 299 (mean = 102) therefore no questionnaires were excluded from the statistical analysis.

Independent t-tests were carried out to investigate whether there is any difference in the mental and physical health scores for the teleworkers and office-workers and revealed there was a significant difference between the mental health scores f (t = 1.85, df = 60, p < .05), indicating higher levels of emotional ill health for the teleworkers. There was no significant difference between the physical health scores for the tele-workers and office-workers (t = 1.05, df = 60, ns).

To investigate the difference in mental and physical health scores between males and females independent t-tests were carried out to investigate whether there is any difference in the mental and physical health scores for males and females. A one-tailed t-test revealed there was a significant difference between the mental health scores for males and females (t = −2.53, df = 50.89, p < .01). This indicates that females are more likely to experience higher levels of emotional ill health than males.

A one-tailed t-test revealed there was a significant difference between the physical health scores for males and females, (t = −2.14, df = 52.88, p < .05). This indicates that females tend to experience more subjective experiences of physical symptoms of stress than males.

A 2 × 2 between subjects ANOVA was carried out on the mental and physical health scores by the two conditions of gender and working pattern. There was a significant main effect of gender on the mental health scores, F(2, 58) = 6.072, but no significant main effect of working pattern on the mental health scores, F(1, 58) = 3.501, ns. There was no significant interaction effect between gender and working pattern on the mental health score, F(1, 58) = .755, ns.

There was a significant main effect of gender on the physical health scores, F(1, 58) = 4.237, p < .05, but no significant main effect of working pattern on the physical health scores, F(1, 58) = .984, ns. There was no significant interaction effect between gender and working pattern on the physical health score, F(1, 58) = 2.987, ns.

Discussion of Study 2

The statistical analysis partly supports the initial prediction that the greater frequency of negative emotions experienced by the teleworkers compared to office-workers in the qualitative study would be supported by higher levels of physical and mental ill health for the teleworking participants than office-workers. The findings suggest that teleworkers experience significantly more emotional ill health than office-workers and, although not statistically significant, Table 2 shows slightly higher levels of physical stress for teleworkers compared to office-workers. These results support Wilson's
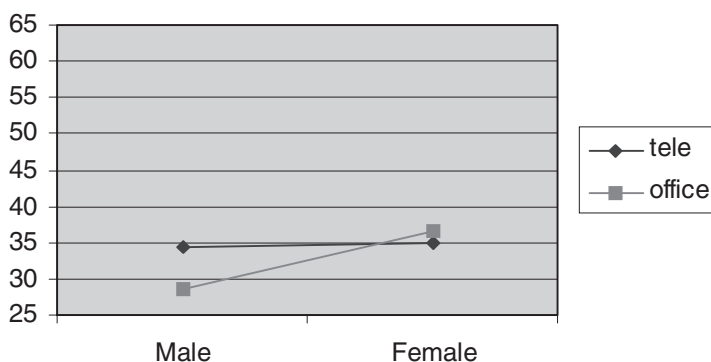

Figure 1. Graph showing physical health scores by gender and working pattern

Table 2: Mean and standard deviation of mental and physical health scores for working pattern (office and teleworkers)

	Mean Mental Health	(S.D.)	Mean Physical Health	(S.D.)	N
Teleworking	59.6	(11.9)	34.6	(7.2)	30
Office-working	54.1	(11.5)	32.3	(9.6)	32

Table 3: Mean and standard deviation of mental and physical health scores and gender

	Mean Mental Health	(S.Dev.)	Mean Physical Health	(S.Dev)	N
Male	53.5	(14.0)	31.4	(10.0)	33
Female	60.6	(7.7)	35.8	(5.9)	29

view (1991) that there are possible health issues relating to the general well-being of teleworkers.

It is of interest to note that even though the office-workers in Study 1 reported experiencing more stress, it was the teleworking group in Study 2 who showed more symptoms of stress. This throws up a number of issues regarding the correlation between subjective reports of 'feeling stressed' and actual stress symptoms; if stress as an emotional experience does not necessarily translate into symptoms, then should this experience be ignored by managers? It could be argued that the symptoms of stress and their associated effects on health are more important to consider than whether individuals claim they do or do not 'feel stressed'—in which case the current findings would argue that stress management attempts should be directed to teleworkers rather than office-workers.

The prediction that female workers will experience higher levels of mental and physical ill health than male workers was supported by the statistical analysis. Table 3 also shows that the females demonstrated a more concentrated range of scores than the males indicating perhaps the similarity of their emotional health experiences and subjective physical symptoms of stress. This may be explained by Duxbury and Higgins' (1991) views that working women are required to cope with job-related demands which affect their performance of the family role resulting in increased levels of work-family conflict. As outlined previously the work-family role conflict is a source of stress and has been correlated with negative experiences of emotional and physical ill health (Duxbury and Higgins, 1991). Studies (Christensen, 1987/1988; Costello, 1988, in Ellison, 1999) have also indicated that female teleworkers usually retain responsibility for the majority of the domestic chores, which can lead to feelings of frustration, inadequacy and stress, therefore explaining their higher scores compared to male teleworkers.

The prediction that male teleworkers will experience less mental and physical ill health than female teleworkers was not statistically supported. Interestingly the results refute the proposal by Bibby (1999) as well, that male teleworkers may feel less stress than male office-workers, and indicate that male teleworkers experience more emotional ill health and subjective experiences of physical symptoms of stress than male office-workers. Telework increases the capacity for the boundaries between work life and family life to become blurred (Hill and Weiner, 1994 in Hill *et al.*, 1996) and enhances the spillover of childcare and household responsibilities into work (Hill *et al.*, 1996). Men are not traditionally involved in these day to day responsibilities and

Table 4: Mean and standard deviation of mental and physical health scores for measures of working pattern and gender

	Mean Mental Health	(S.Dev)	Mean Physical Health	(S.Dev)
Male				
teleworker	57.5	(14.9)	34.3	(7.6)
Office-worker	49.7	(12.3)	28.7	(11.3)
Female				
teleworker	62.1	(7.1)	35.0	(7.0)
Office-worker	59.2	(8.2)	36.5	(4.8)

generally tend to operate their roles consecutively (Hall, 1972, in Ellison, 1999). However, male teleworkers may be taking on the dual responsibilities of work and home life, usually the female's domain. As dual responsibilities are accepted as causes of stress for females, this may explain why male teleworkers experience more mental and physical ill health than male office-workers. The findings that male teleworkers experience more mental and physical ill health than male office-workers may be also be related to their loss of status, through being invisible to company members and the effect on their social position (Olson and Primps, in Standen *et al.*, 1999).

Although not statistically significant, Table 4 does indicate that male teleworkers experience less mental and physical ill health than female teleworkers and female teleworkers experience more mental ill health than female office-workers. Studies have suggested that the double ordeal of the domestic sphere and paid employment may lead to stress for female workers and that this is even more intensified for female teleworkers (Fothergill, 1998 in Baines, 1999).

Concluding remarks and implications of studies

This study supports the proposal by Mann *et al.* (2000) that teleworking has a significant emotional impact on employees as reports of negative emotions such as loneliness, irritation, worry and guilt were more apparent than with office-workers. Teleworkers overall were also found to experience more mental ill health than office-workers. Again this highlights the proposition by Mann *et al.* that although the implementation of new working patterns may reduce organisational costs, the quality of working life may not necessarily be improved.

Social isolation and loneliness were most frequently associated with the feeling of negative emotions by the teleworkers. This supports the idea that emotion is significantly social (Parkinson, 1996) and that the reliance on CMC rather than FTF (face-to-face) communication may contribute to a decrease in workers emotional well-being as proposed by Hobbs and Armstrong (1998). Studies of loneliness propose that other negative emotions, such as anxiety, irritation and worry are linked to the all pervading mood attached to loneliness (Peplau and Caldwell, 1978, in Rook, 1984). This may explain the prevalence of these negative emotions in the teleworking sample. The findings that teleworkers experience more mental ill health than office workers may relate to the theory that social relationships reduce the likelihood of stress-related disorders (Rook, 1984). For many workers the social interaction of the workplace is utterly important and this study has highlighted the psychological stress of separation from professional colleagues and the social banter and buzz that constitutes an office environment. It is very important that teleworkers who are socially isolated from work colleagues should have social contact elsewhere, to remain mentally healthy and therefore work efficiently. To try and overcome these issues organisations should ensure that attendance at group meetings and company social events are encouraged

and maybe introduce video conferencing as another alternative to replace FTF communication. For example, in the UK, Rank Xerox Networking teleworkers continue to be included in departmental organisation charts and on relevant circulation lists, they are invited to departmental meetings, briefings and social functions and are listed in the company's telephone directories (Di Martino and Wirth, 1990). A novel way in which another organisation has tried to deal with some of the issues is with the introduction of 'health circles' which allowed open discussion of problems that teleworkers commonly face; this company found that participants in the health circles reported significantly more 'positive changes in typical stress factors' than teleworkers in a control group (Konradt *et al.*, 2000). It has been recommended by other authors (e.g. Fairweather, 1999) that teleworkers spend a minimum of 20 per cent of working time in the office Despite these suggestions, recent research suggests that less than half the companies that have introduced teleworking in the UK have actually taken any steps to counter the possible effects of isolation (Collinson Grant, 1998).

Telework is regarded as an option for organisations to provide working parents with flexibility to manage their own working hours, with the overall aim that this flexibility will result in more satisfied, less stressed and thus more productive employees (Sturgeon, 1996). It may especially offer men more time to spend with the family but it can also intimidate their male identity. In the western culture men are expected to give work their top priority, therefore men who are greatly involved in family roles are 'behaving in a manner inconsistent with societal and organisational norms' (Duxbury and Higgins, 1991: 62). The trend to involve men in 'family-friendly' policies needs to be approached with care as the outcome may affect their psychological well-being. Also, the impact of teleworking on the relationship with other family members, whose home is another person's workplace, needs to continue to be a focal point for work-family research (Lewis and Cooper, 1995).

Although telework was initially seen as a way of improving the 'quality of life' for employees, today the main reason for organisations introducing a different working pattern is to reduce costs and increase productivity. Most of the literature covering telework reflects the employers' view and not the employees viewpoint (Stanworth, 1996). Studies of teleworking have already highlighted some discontentment with the working pattern but organisations are continuing to promote teleworking as a working pattern beneficial for the employee (Stanworth, 1996). The negative psychological aspects of teleworking may have an impact on the organisations as well as the employees; with longer-term costs in terms of higher turnover, sickness and reduced loyalty and motivation. Gray (1995) predict that by 2010 there will be 10 million teleworkers in the UK and 35 million in the USA therefore it is important to conduct further research into this working pattern and the psychological impact on emotional well-being, stress and health. Such research suggestions include:

- A future study should use qualitative and quantitative diary studies to measure the range of emotions more accurately. As emotions are short-lived, and the examples and feelings are easily forgotten or enhanced, the use of a daily self-report diary over a period of several weeks may be a more effective way of unravelling emotional processes during work.
- Future research could include a longitudinal study to investigate whether emotions and stress change over time as according to Stanworth and Stanworth (1991, 1997, in Stanworth, 1996) discontentedness can creep in after a few years of teleworking. Also as work-family situations change, for example children growing up, or elderly parents requiring more help, this may lead to increases or decreases in associated mental and physical ill health.
- Many studies have focused on the stress and problems experienced by females in a home-working situation. However with a growing acceptance of the need for fathers to spend more quality time with their children this may lead to more men adopting a telework working pattern. A future study could investigate more accurately the emotional impact of teleworking on males and the effect on their mental and physical ill health.
- This research focused on a group of participants who were journalists. Whilst there were sound reasons for selecting this group (outlined earlier in the paper), it could be argued that this group is not necessarily representative of all teleworkers or office-workers. The nature of the journalist job is such that they probably need to be very proactive in their inter-personal communication. It might be suggested that such people might have more of a need for inter-personal interaction and thus might suffer more from the effects of isolation than others. Whilst future

studies could widen the participation pool to other professions, a more useful focus might be taken towards the issue of identifying personality traits (rather than examining professional groupings) that are more likely to protect the worker from the negative effects of teleworking.

In the meantime, the results of the current studies offer a number of implications for managers, practitioners and for teleworkers themselves. These include:

1. Managers should have written teleworking policies that deal with issues such as sick leave and working hours. Such policies should emphasise the fact that tele-workers should enjoy the same rights as their office-working collegaues, even when they are less visible.
2. Ideally, employers should help reduce the resentment that teleworkers may feel with regards to work intruding on home life, perhaps by offering benefits such as providing equipment needed to work from home.
3. Efforts should be made to reduce isolation of teleworkers by providing varied and innovative opportunities for interaction.
4. Technical support for teleworkers should be prioritised to reduce the impact of technology failure as a major source of stress.
5. Support should be offered to individuals considering teleworking or who are already teleworking. This support should include advice and input on dealing with stress, work and family boundaries and work-family conflict, all of which may be particularly relevant to teleworkers.

If the benefits of teleworking are to be harnessed then it is essential that employers consider the psychological impact that this working pattern may have and take the necessary steps to combat any potential negative effects. Today's teleworker does not just need the right technological equipment to ensure success, but also the appropriate psychological tools.

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