The scale of occupational stress

The Bristol Stress and Health at Work Study

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Andrew Smith, Sarbjit Johal and Emma Wadsworth
Department of Experimental Psychology
University of Bristol
8 Woodland Road
Bristol BS8 1TN

George Davey Smith and Tim Peters
Department of Social Medicine
University of Bristol
Canynge Hall
Whiteladies Road
Bristol BS8 2PR

The research reported here had three main aims. First, to determine the scale and severity of occupational stress in a random population sample. Second, to distinguish the effects of stress at work from those of general life stress. Finally, to determine whether objective indicators of health status and performance efficiency were related to perceived occupational stress.

These aims were investigated by conducting an epidemiological survey of 17 000 randomly selected people from the Bristol electoral register, a follow-up survey 12 months later, and detailed investigation of a cohort from the original sample. The results revealed that approximately 20% of the sample reported that they had very high or extremely high levels of stress at work. This effect was reliable over time, related to potentially stressful working conditions and associated with impaired physical and mental health. The effects of occupational stress could not be attributed to life stress or negative affectivity. The cohort study also suggested that high levels of occupational stress may influence physiology and mental performance.

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EXECUTIVE SUMMARY OF THE BRISTOL STRESS & HEALTH AT WORK STUDY

Phase 1 of the study involved the successful completion of the study of occupational stress. After extensive piloting, 17,000 randomly selected people from the Bristol electoral register were mailed a 32-page questionnaire, eliciting a final response rate of 49%. The final figures indicated that occupational stress was at levels described as 'very' or 'extremely stressful' (described as 'highly stressed') for approximately 20% of the working sample that responded.

Full demographic analyses of the sample at both time points are presented, including comparison of rates of illness for chronic conditions when compared with other large sample databases, and comparison of selected working conditions experienced by other samples comparable to the one reported in the Bristol Stress and Health Study.

Occupational stress has been described according to various demographic profiles, including gender, age category, and whether the person has a full-time or part-time job.

Associations with the various components of the Karasek job strain model indicate that the work stress measure in the Bristol Stress and Health Study is best thought of as representing respondents' job demand.

High occupational stress was significantly associated with a number of work characteristics that have been identified with occupational stress in the existing literature.

High occupational stress was also strongly related to a number of health outcomes (as measured by different instruments), including; chronic ill-health conditions, symptoms over the last 12 months, symptoms over the last 14 days, and with the use of prescribed medication.

High occupational stress was also strongly related to a number of health-related behaviours, such as number of hours of sleep during weekdays.

At approximately 12 months after the initial phase of the study, a second mailing to 4673 participants who agreed to be contacted again took place, yielding a response rate of 69%. At this point, participants were also recruited to the laboratory phase of the study.

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Analyses of the Time 2 data set revealed a regression of work stress scores towards the mean point, as was expected. Approximately 18% of those working at Time 2 indicated that their occupational stress was at levels described as 'very' or 'extremely stressful'.

A similar pattern of results regarding associations between work stress and health, health-related behaviours, and work characteristics were found at Time 2, compared to Time 1.

Analyses of change scores for Time 1 work stress upon Time 2 health status revealed that the effects of high job stress upon acute gastro-intestinal symptoms, fatigue, tension, depression, and anxiety, as well as a number of other symptoms were robust.

Analyses of change scores for Time 1 work characteristics upon Time 2 work stress indicated that certain work characteristics were significantly associated with work stress, including items indicating that work issues interfered strongly with family life.

At Time 2, analyses revealed that work stress was significantly associated with sick leave, GP visits and accidents.

There was little difference in the overall pattern of associations between work stress and health at Time 1, Time 2, or when examining change scores across time, when those with high general life stress scores (at Time 1) were excluded from the analyses. This indicated that the effects of work stress are to a large degree independent from those of general life stress as measured by this questionnaire.

The cohort study involved comparisons between a group of people identified as work 'stressed' at both time points and a group of randomly selected respondents from the remaining pool of participants, excluding those who were experienced 'high' work stress at either time point.

Detailed investigation of the cohort study (approximately 200 people) verified subjective reports of stress using other validated measures (e.g. the Occupational Stress Indicator). Many of the associations between stress and health remained even after controlling for the possible confounding influence of negative affectivity. Subjective reports of mood on the day also showed a difference between the 'stressed' and non-stressed' groups.

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Some differences were found between the groups with respect to clinical measures, haematological assays and objective performance indicators. There was no effect of work stress on cortisol levels although these were elevated in the high life stress group.

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"There are no reliable estimates of the incidence of occupational stress and related disorders in the British working population" [1]. The aim of this study was to determine the prevalence and severity of occupational stress in a random community sample.

BACKGROUND

OCCUPATIONAL STRESS: PREVIOUS ESTIMATES OF THE EXTENT OF THE PROBLEM

There is now considerable evidence that occupational stress is widespread and can be a major cause of ill health at work. For example, the 1990 trailer to the Labour Force Survey[1] suggested 182,700 cases of stress/depression in England and Wales caused or made worse by work in that year. Estimates based on the 1995 Survey of Self-reported Work-related Ill Health (SWI) [2] indicated that approximately 500,000 people in Great Britain believed they were suffering from work-related stress, depression or anxiety, or from an illness brought on by stress. Stress, depression and anxiety, with an estimated 302,000 cases in Great Britain, represented the second most commonly reported group of work-related illnesses after musculo-skeletal disorders. An estimated 261,000 people described stress at work as causing or making their complaint worse.

These figures suggest a 30% increase in occupational stress from 1990 to 1995. Some of this may be due to differences in the survey designs of the studies. However, other factors may be responsible for the increase. For example, increased awareness of stress, changing attitudes to stress, and changes in social and economic conditions may all be important factors. Such data are, for a number of reasons, imprecise and can only be used as a basis for "educated guesses" of the extent of occupational stress. In summary, while different studies all suggest that stress is a major problem, there is considerable disagreement about the extent of it. Kearns [3] has suggested that 40 million days are lost each year due to stress-related disorders and that up to 60% of work absence is caused by them. More recent estimates suggest that some 91.5 million working days are lost each year through stress-related illness. It is clearly important, therefore, to provide more definitive figures on the prevalence of occupational stress, and the effects of stress on health.

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PROBLEMS WITH THE EXISTING DATABASE

Previous studies have methodological problems which need to be rectified by new research. For example, there has been no clear definition of occupational stress and despite the fact that the inadequacy of non-validated single one-off measures of stress is well known, they continue to be used. In addition, previous research has failed to distinguish between stress at work and stress elsewhere. This is a difficult issue to examine. On the one hand it is clearly erroneous to believe that work and non-work activities are unrelated in their psychological, physiological and health effects (the "myth of separate worlds"[4]). However, it is possible to classify certain types of stress as occupational or non-work related even though this will clearly leave many types that involve interactions between the two. These interactions may take several forms. For example, the primary source of stress may occur outside work but be exacerbated by work. Similarly, stress may be work-related but have an influence on home life. Only further empirical research will provide evidence on the prevalence of these various sub-types of stress. In addition, most previous research has focused on the individual without considering either the effects on the organisation or on the person's family and the community. This research on the costs of occupational stress is beyond the remit of the present project but clearly needs to be examined in further new research.

A major problem with much of the previous work in this area is that the assessment of stress has not been driven by any clear model and there has been little attempt at validation. This has important implications for the type of measurements that are necessary, and for the techniques that need to be used to validate these assessments of stress. Indeed, while it is widely acknowledged that stress may influence health and job effectiveness, we have little precise information on how frequently such effects occur. It is quite plausible to distinguish between the "subjective distress" produced by stress at work and objective health and performance outcomes. Estimates about the scale of stress effects may show great variation depending on the indicators used. Indeed, it is important to recognise that occupational stress and the impact of it are both usually measured by self-report, which means that associations could reflect the influence of such biases.

AN APPROACH TO THE STUDY OF OCCUPATIONAL STRESS

This section is intended to serve two purposes. First, it will show that many of the problems associated with earlier work can be overcome using recent approaches to the study of stress.

Secondly, it will be shown that the present approach to the definition of occupational stress can be incorporated into an epidemiological study to address the issues raised above.

DEFINITION OF STRESS

Stress can be defined in several ways and it is important to use an approach which covers the different aspects of the concept. First of all, occupational stress has often been regarded as an aversive characteristic of the working environment. This has often led to stress being grouped with physical hazards (e.g. noise) and research being directed to measurement of exposure levels and examination of the relationship between these and health/performance outcomes. Secondly, stress has been viewed as a physiological response to a threatening or damaging environment. Another approach has viewed stress in terms of an interactional framework, one of the best examples being Karasek's model [5] suggesting that job demands and decision latitude interact to influence health. Information relevant to all of these approaches to stress is easy to collect. However, more recent views of stress (e.g. Lazarus & Folkman[6]; Cox[7]) suggest that they are inadequate and should be replaced by transactional theories which focus on the cognitive processes and emotional reactions underpinning individuals' interactions with their environment.

The last approach has strong implications for the measures which need to be used. First, it suggests that self-reports of the appraisal process and the emotional experience of stress are required. This will involve perceptions of demands, measures of primary appraisal ("Do I have a problem?") and secondary appraisal ("I have a problem what should I do about it?"). The ability to cope should also be assessed as should the needs of the individual and the extent to which they are fulfilled by work. Similarly, the level of control is an important factor to measure. Other psychosocial factors also need to be taken into account. For example, support at work may well act as a buffer against the effects of occupational stress. All of the factors need to be analysed to account for possible interactions between them (e.g. job demand/control/support - see Payne & Fletcher[8]). In addition, it is essential to provide quantitative data about the frequency, duration or level of the different measures rather than merely assessing the presence or absence.

Self-reports of occupational stress and health outcomes can be criticised in several ways. First, associations between the two may be partly explained by common method co-variance (Aldag, et al.),[9] job attitudes (Spector, et al.),[10] negative affectivity leading to negative reports of both work and health (Brief et al.),[11] or reverse causation (Kasl. S.V.)[12] - poor health leads to a deterioration in perceived or actual working conditions. Some of these problems can be

eliminated by methodological features (e.g. by covarying negative affectivity and seeing whether any relationships remain). However, it is clearly desirable to use other types of measures to validate self-reports of appraisal and the emotional experience of stress. Cox [7] has argued that this can be achieved by considering evidence relating self-reports of stress to changes in behaviour, physiology and health status. This category of measures may include objective indicators of functioning (e.g. biochemical and haematological assays; cardiovascular parameters, or measurement of mental performance) or information from clinical assessments. In addition, archival data such as absenteeism or accident statistics may also be important. Health-related behaviours, such as alcohol consumption and smoking, also need to be measured as they may act as important mediators of stress/health effects. The self-reports of stress should also be related to the objective and subjective antecedents of individuals' experience of stress. An audit of the working environment is also highly desirable, not only to assess physical and psychosocial antecedents of stress, but to compare workers' perceptions and provide unobtrusive measures of health and job effectiveness. However this is beyond the scope of a community sample based study such as this.

The above sections have described the type of information that needs to be collected to address the issue of the scale of occupational stress (see Smith et al. [13] for further discussion). The specific aims of this study were as follows:

1) To determine the prevalence and severity of occupational stress in a random population sample.
2) To distinguish stress caused by work from that caused by other factors.
3) To assess the further health impact of stress using a cohort design.

THE PILOT STUDY

The pilot study had two main aims. First, to develop and confirm the efficacy of the procedures to be used in the main survey. Secondly, to ensure that essential information was collected and that the questionnaire was in a form that was acceptable to the respondents.

Three pilot studies were conducted (see Smith et al. [14] for further details). The first and third studies used a version of the questionnaire that was very similar to that finally chosen for the main study. The second study used a one page screening questionnaire followed by the longer questionnaire for those who agreed to take part. This procedure resulted in a lower response rate so it was abandoned in favour of the original method.

Pilot 1

The pilot study questionnaire and covering letter were sent, and followed by postal reminders three weeks later. Telephone reminders were made, where possible, after a further three weeks. Overall, 79 of the 200 questionnaires (40%) were returned, 69 completed (35%).

Pilot 3

Questionnaires and covering letters were sent by recorded delivery. Follow-up was made by regular mail, then telephone (where possible), and finally by a third regular mail letter.

Of the 200 questionnaires, 15 (8%) were returned because the addressee was unknown. Of the remaining 185, 95 (51%) were completed, 48 (26%) were returned not completed, and for 42 (23%) no response was received.

The major problem to emerge from the pilot studies was the low response rate. This is unlikely to reflect the procedures used as standard survey techniques were adopted to minimise non-responding. Rather, it is more likely that the response rate reflects the nature of the topic and range of information collected. Psychological surveys using similar sized questionnaires (over thirty pages long) typically get response rates of about thirty percent. The respondents were also given the option of returning the blank questionnaire immediately and if this happened they were not followed up. Finally, it must be remembered that the samples were random community samples rather than selected samples from specific occupations, with respondents allowed to complete questionnaires during work time. The low response rate showed that it was essential to determine the comparability of responders and non-responders in our main study. This was achieved by collecting a limited amount of information on demographic, work and health characteristics of the non-responders.

The pilot studies did indicate that the methodology used in Pilot 3 produced a higher response rate. It also allowed us to distinguish between non-responders and those who were no longer at the address, and reflect this accordingly in the response rate. In addition, we were able to assess the acceptability of the questionnaire content (for details and results see Appendix 1). For reasons of cost, it was decided that recorded delivery should be reserved for the final reminder mailing.

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RESULTS FOR MAIN STUDY

In this section of the final report, the main study will be described, including procedures for all mailings at both Time 1 and Time 2.

Time 1 procedures

Each of the 17,000 project packs consisted of a covering letter, the questionnaire, and a freepost envelope to return the questionnaires. These were posted using regular mail. Reminder letters and questionnaires were sent by regular mail four weeks later. Telephone reminders followed after a further month, and a final letter and questionnaire were sent by recorded delivery after another four weeks.

Time 2 procedures

Time 2 mailing began approximately one year after Time 1. Questionnaires were sent to all those 4673 who indicated at Time 1 that they would be prepared to complete another questionnaire. The mailing strategy was the same as that used at Time 1.

The questionnaires sent out at time 1 and time 2 are shown in Appendix 2.

QUESTIONNAIRE RESPONSE RATES

This section examines the response rates to the mailed questionnaires at both times one and two. In addition, the response to a short questionnaire sent to non-responders at time one will be considered (see Smith et al. [15] for further discussion).

Table 1 below presents a detailed breakdown of the response to the first questionnaire, which was mailed to the 17,000 population randomly selected from the Bristol electoral register in March 1998.

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Table 1
Response rates at time 1

		N	% of those sent out (baseline 17000)	% response (baseline 14497)
Completed		**7069**	**41**	**49**
Blank included	**Total**	**4742**	**28**	**33**
	Refused	1164	7	8
	Blank no comment	2494	15	17
	Completed by someone else	4	< 1	< 1
	Recorded delivery not collected	1012	6	7
	Recorded delivery refused	68	< 1	< 1
Not returned		**2686**	**16**	**18**
Blank excluded	**Total**	**2503**	**15**	
	Marked not addressee	118	< 1	
	Returned by PO addressee no longer there	694	4	
	Deceased	179	1	
	Returned by PO unable to deliver	7	< 1	
	Unopened marked addressee not there	866	5	
	Recorded delivery gone away	521	3	
	Recorded delivery address incomplete	5	< 1	
	Recorded delivery address inaccessible	14	< 1	
	Recorded delivery addressee unknown	98	< 1	
	Recorded delivery no such address	1	< 1	
Total		**17000**		

It is clear from the table that the use of recorded delivery mail allowed us to learn more about non-responders than we could otherwise have discovered. The overall response rate therefore reflects this. The table shows the total response rate over all three mailings. It is interesting to note that of the 7069 completed questionnaires received for time one, 70% (4,934) were

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returned from the first mailing, 19% (1307) from the second, and 12% (828) from the third mailing.

Table 2 presents similar details for response rates to the time two questionnaire.

Table 2
Response rates at Time 2

		N	% of those sent out (baseline 4673)	% response (baseline 4498)
Completed		**3112**	**66.5**	**69.1**
Blank included	**Total**	**55**	**1.2**	**1.2**
	Refused	18	0.4	0.4
	Blank no comment	36	0.7	0.8
	Completed by someone else	1	-	-
Not returned		**1328**	**28.5**	**29.7**
Blank excluded	**Total**	**178**	**3.7**	
	Marked not addressee	26		
	Returned by PO addressee no longer there	78		
	Deceased	14		
	Returned by PO unable to deliver	1		
	Unopened marked addressee not there	59		
Total		**4673**		

Response rates at time two are considerably higher than those for time one, as would be expected from a population of subjects who have agreed to take part further in the study by completing a second questionnaire.

Table 3 below shows the response rate to a one page questionnaire that was sent to a proportion (45%) of the 2686 people who did not respond to any mailings of the first questionnaire.

Table 3
Response rates to questionnaire to non-responders at time 1

		N	% of those sent out (baseline 1200)	% response (baseline 1196)
Completed		**243**	**20**	**20**
Blank included	**Total**	**23**	**2**	**2**
	Refused	12	1	1
	Blank no comment	11	1	1
Not returned		**930**	**78**	**78**
Blank excluded	**Total**	**4**	**<1**	
	Marked not addressee	2	<1	
	Returned by PO addressee no longer there			
	Deceased	2	<1	
Total		**1200**		

The overall response rate to this one page questionnaire was low, as was expected. However, it did enable us to collect some basic demographic data on non-responders, to compare with those who did complete the first questionnaire.

DEMOGRAPHIC CHARACTERISTICS

This section will focus on describing the study's respondents. Comparisons will be made within the study between times one and two. Further comparisons will be made with both non-responders, and sources of data outside the study. This will allow us to assess the representativeness of those who took part in the study in relation to the general population. Further comparisons and results are in Appendix 3.

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Table 4
Age and sex of all responders at times 1 and 2

Age	Time 1 Total	Time 2 Total	Time 1 Males	Time 2 Males	Time 1 Females	Time 2 Females
All ages (18 and over)	6975 (100.0%)	3095 (100.0)	3185 (45.7)	1355 (43.8)	3790 (54.3)	1740 (56.2)
18-24	564 (8.1)	176 (5.7)	231 (7.3)	63 (4.6)	333 (8.8)	113 (6.5)
25-34	1202 (17.2)	509 (16.4)	499 (15.7)	180 (13.3)	703 (18.5)	329 (18.9)
35-44	1429 (20.5)	692 (22.4)	620 (19.5)	279 (20.6)	809 (21.3)	413 (23.7)
45-54	1276 (18.3)	612 (19.8)	585 (18.4)	261 (19.3)	691 (18.2)	351 (20.2)
55-64	928 (13.3)	429 (13.9)	482 (15.1)	222 (16.4)	446 (11.8)	207 (11.9)
65-74	934 (13.4)	448 (14.5)	469 (14.7)	235 (17.3)	465 (12.2)	213 (12.2)
75 and over	642 (9.2)	229 (7.4)	299 (9.4)	115 (8.5)	343 (9.1)	114 (6.6)

The above table shows the age and sex of respondents at both times one and two. Overall it is clear that there are slightly more female than male respondents. Comparing proportions of respondents within age and sex groups between times one and two shows consistency on the whole. The only differences are a slight fall in the youngest (particularly among males), and oldest age groups.

Table 5
1991 Census data for Bristol - population by age and gender

Age	Total Persons	Males	Females
All ages (18 and over)	294,961 (100.0%)	140,086 (47.5)	154,875 (52.5)
18-24	40,917 (13.9)	20,244 (14.5)	20,673 (13.3)
25-34	64,115 (21.7)	31,627 (22.6)	32,488 (21.0)
35-44	50,090 (17.0)	25,337 (18.1)	24,753 (16.0)
45-54	39,098 (13.3)	19,709 (14.1)	19,389 (12.5)
55-64	36,575 (12.4)	17,907 (12.8)	18,668 (12.1)
65-74	35,381 (12.0)	15,579 (11.1)	19,802 (12.8)
75 and over	28,785 (9.8)	9,683 (6.9)	19,102 (12.3)

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Table 5 shows census data for Bristol in 1991. Comparing tables 4 and 5 indicates that the study population is somewhat under-representative of the youngest age group, particularly males. This is likely to be a reflection of the use of the electoral register for sampling, and the general mobility of the age group. Among other age groups the study's respondents are broadly representative of the Bristol population at large.

Table 6
Non - respondents data by age and gender

Age	Total Persons	Males	Females
All ages (18 and over)	237 (100.0%)	101 (42.6)	136 (57.4)
18-24	12 (5.1)	5 (5.0)	7 (5.1)
25-34	27 (11.4)	12 (11.9)	15 (11.0)
35-44	32 (13.5)	13 (12.9)	19 (14.0)
45-54	39 (16.5)	21 (20.8)	18 (13.2)
55-64	20 (8.4)	8 (7.9)	12 (8.8)
65-74	51 (21.5)	21 (20.8)	30 (22.1)
75 and over	56 (23.6)	21 (20.8)	35 (25.7)

Table 6 above shows the age and sex of those non-responders who completed the one page questionnaire sent to 45% of those who did not respond at Time one. As the numbers in each cell are small it is not appropriate to make very detailed comparisons, but the relatively large proportion of those aged 65 years and older suggests that many of the non-responding population were over retirement age. It seems likely, therefore, that this age group may have felt that the questionnaire was not appropriate for them, despite the introduction to the questionnaire urging completion whether the respondent was working or not.

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Table 7
Age and gender of those in employment only

	Time 1 Males	Time 2 Males	Time 1 Females	Time 2 Females	Time 1 Total	Time 2 Total
	N=1977	N=811	N=2109	N=1069	N=4086	N=1880
Age						
18-24	139 (3.4%)	40 (2.1)	208 (5.1)	82 (4.4)	347 (8.5)	122 (6.5)
25-34	452 (11.1)	156 (8.3)	522 (12.8)	252 (13.4)	974 (23.8)	408 (21.7)
35-44	552 (13.5)	249 (13.2)	629 (15.4)	357 (19.0)	1181 (28.9)	606 (32.2)
45-54	478 (11.7)	217 (11.5)	540 (13.2)	285 (15.2)	1018 (24.9)	502 (26.7)
55-64	298 (7.3)	125 (6.6)	182 (4.5)	79 (4.2)	480 (11.7)	204 (10.9)
65-74	52 (1.3)	23 (1.2)	26 (0.6)	13 (0.7)	78 (1.9)	36 (1.9)
75 and over	6 (0.1)	1 (0.1)	2 (0.0)	1 (0.1)	8 (0.2)	2 (0.1).

Table 7 above shows the age and sex of those respondents who were in employment at times one and two. Comparing this table with Table 4 (showing the same breakdown for all respondents), indicates that the only differences lie, as expected, in those aged over 65 years, a much smaller proportion of whom are in employment.

Table 8
Marital status gender at times one and two

Marital status	Time 1 Total	Time 2 Total	Time 1 Males	Time 2 Males	Time 1 Females	Time 2 Females
All categories	6967 (100.0%)	3071 (100.0)	3183 (45.7)	1345 (43.8)	3784 (54.3)	1726 (56.2)
Single	1304 (18.7)	493 (16.1)	634 (19.9)	213 (15.8)	670 (17.7)	280 (16.2)
Married	4011 (57.5)	1851 (60.3)	1969(61.9)	873 (64.9)	2040(53.9)	978 (56.7)
Cohabiting	579 (8.3)	259 (8.4)	251 (7.9)	106 (7.9)	328 (8.7)	153 (8.9)
Divorced/ Separated	558 (8.0)	256 (8.3)	203 (6.4)	96 (7.1)	353 (9.3)	160 (9.3)
Widowed	519 (7.4)	212 (6.9)	126 (4.0)	57 (4.2)	393 (10.4)	155 (9.0)

The above table shows the marital status of all respondents at times one and two of the study. It is clear that within each sex, proportions in each category are very similar between the two time points.

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Table 9
1991 Census data for Bristol - population by Marital Status, and Gender

Marital Status	Total Persons	Males	Females
All categories	294,961 (100.0%)	140,086 (47.5)	154,875 (52.5)
Single	85,859 (29.1)	46,307 (33.1)	39,552 (25.5)
Married	159,161 (54.0)	79,102 (56.5)	80,059 (51.7)
Divorced	21,743 (7.4)	9,266 (6.6)	12,477 (8.1)
Widowed	28,198 (9.6)	5,411 (3.9)	22,787 (14.7)

Table 9 shows the marital status of the Bristol population as recorded in the 1991 census. Bearing in mind that the "cohabiting" category used in the study questionnaires is included in the "single" category of the census data, comparing Tables 8 and 9 shows that the study population is representative of the Bristol population in terms of marital status.

Table 10
Marital status, and gender of non-respondents

Marital Status	Total Persons	Males	Females
All categories	237 (100.0%)	101 (42.6)	136 (57.4)
Single	34 (14.3)	11 (10.9)	23 (16.9)
Married	138 (58.2)	65 (64.4)	73 (53.7)
Cohabiting	15 (6.3)	10 (9.9)	5 (3.7)
Divorced / Separated	12 (5.0)	6 (5.9)	6 (4.4)
Widowed	38 (16.0)	9 (8.9)	29 (21.3)

Table 10 above shows data from the short questionnaire sent to a proportion of those who did not respond to the time one questionnaire. The numbers involved are small, and so should be treated with caution, but they do seem to suggest that those who were widowed may have been less likely to respond to our questionnaire.

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Table 11
Marital status and gender of working respondents only

	Time 1 Total	Time 2 Total	Time 1 Males	Time 2 Males	Time 1 Females	Time 2 Females
	N=4106	N=1874	N=1987	N=810	N=2119	N=1064
Marital status						
Single	837 (20.4%)	337 (18.0)	417 (21.0)	132 (16.3)	420 (19.8)	205 19.3)
Married	2411 (58.7)	1139 (60.8)	1222 (61.5)	523 (64.6)	1189 (56.1)	616 (57.9)
Cohabiting	474 (11.5)	215 (11.5)	212 (10.7)	89 (11.0)	262 (12.4)	126 (11.8)
Divorced/ separated	332 (8.1)	159 (8.5)	124 (6.2)	60 (7.4)	208 (9.8)	99 (9.3)
Widowed	52 (1.3)	24 (1.3)	12 (0.6)	6 (0.7)	40 (1.9)	18 (1.7)

Comparing Tables 8 and 11 (marital status of all respondents and respondents in employment respectively), shows, as expected, broadly similar proportions for all categories except those who were widowed.

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THE SCALE OF OCCUPATIONAL STRESS

If one looks at table 12 describing reports of work stress at both Time 1 and Time 2, one can see that there is a reasonably clear pattern that corresponds well to the pattern discovered in the Pilot study (see Appendix 2).

If one takes a very strict criterion, then one sees a figure of about 2-3% of workers that are extremely stressed, at both Time 1 and Time 2. This agrees closely with the figures of the Labour Force Survey[1]. If one shifts this criterion to include even moderate levels of work stress, then one obtains higher figures that agree with other alternative estimates of the scale of stress at work.

It is also clear that the data collected one year after the original survey showed that our original estimation of perceived occupational stress was reliable.

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Table 12
Stress at Work by category at Time 1 and Time 2
(in paid work at Time 1 and Time 2)

	Not at all stressful		Mildly stressful		Moderately stressful		Very stressful		Extremely stressful		Total
	N	%	N	%	N	%	N	%	N	%	N
Time 1	354	8.8	1185	29.3	1754	43.4	639	15.8	112	2.7	4044
Time 2	155	8.4	568	30.6	814	43.9	277	14.9	40	2.2	1854

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CATEGORISATION OF WORK STRESS

On reflection, most would agree that those workers in the 'very stressed' category are likely to represent a major potential occupational health problem, and our estimate of the prevalence of job stress is based upon this categorisation. Using this, a figure of approximately 17-19% is found, or 1 in 5 people who responded to our study surveys (see Smith et al.[16] for further discussion).

We have adopted this cut-off point for categorisation into low and high stress groups, as the benchmark for the reporting of our data. Although it can be argued that the adoption of this benchmark point is somewhat arbitrary, we believe that this is a valid cut-point for two main reasons. Firstly, those respondents who feel very stressed or extremely stressed with respect to their working lives clearly warrant major consideration of prevention and management. We consider that no organisation would want their employees to be very stressed. Secondly, it is common practice to define the 'high' group in analyses such as these as the upper quartile. Our estimate of the scale of perceived occupational stress falls close to this figure.

GENERAL FORMAT OF REPORTING OF RESULTS

As is in the case in most quantitative social research of this type, the results are reported in cross-tabulated format. The aim of this method is to discover whether there is a relationship between the variables, and if there is, to find its nature. Once a relationship has been confirmed, the nature of the relationship can be used to see whether the data confirm of contradict a theoretical prediction.

In these results, the tables cross-tabulate two or more variables, each divided into several categories or levels. The cells of the table hold frequency counts and percentages of respondents falling into the various categories. The cells are summed by rows (for the majority of tables) for ease of comparison within levels of work stress. In addition, an additional column containing information about the significance of chi-square statistic, used to assess the strength of any relationship that is discovered. The details of the chi-square statistic, including value and degrees of freedom, can be found in the descriptive text that follows each set of tables

In tables where means are reported, the data are arranged by category, in a similar fashion to the frequency counts presented in cross-tabulated form.

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WORK STRESS BY GENDER, WORK TYPE AND BY AGE CATEGORY AT BOTH TIME POINTS

The tables below show the distribution of perceived work stress at Time 1 and Time 2 displayed by gender. The patterns indicate that there is a more or less equal distribution of male and female respondents in each work stress category at both Time 1 and Time 2. About 19% of male and female respondents report high work stress at Time 1, and approximately 17-18% of male and female respondents report high work stress at Time 2.

Table 13
Stress at work by gender Time 1

	Male	Female	Total
Low work stress	1576 (81.4%)	1664 (81.4)	3240
High work stress	360 (18.6)	380 (18.6)	740
Total	1936 (100)	2044 (100)	3980

Stress at work by gender Time 2

	Male	Female	Total
Low work stress	661 (83.2%)	858 (82.5)	1519
High work stress	133 (16.8)	182 (17.5)	315
Total	794 (100)	1040 (100)	1834

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The tables below show the distribution of perceived work stress at Time 1 and Time 2 displayed by work type (full-time or part-time). The pattern is clear at both time points: a greater proportion of respondents who work full-time report high perceived work stress compared to those who work part-time.

Table 14
Stress at work by work type at Time 1

	Part-time	Full-time	Total
Low work stress	890 (91.2%)	2350 (78.2)	3240
High work stress	86 (8.8)	654 (21.8)	740
Total	976 (100)	3004 (100)	3980

Stress at work by work type at Time 2

	Part-time	Full-time	Total
Low work stress	456 (94.4%)	1063 (78.7)	1519
High work stress	27 (5.6)	288 (21.3)	315
Total	483 (100)	1351 (100)	1834

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The tables below show the distribution of perceived work stress at Time 1 and Time 2 displayed by age category. At Time 1, the average proportion of those reporting high received work stress is 19.6%; around 1 in 5 people. At Time 2, this proportion has dropped slightly to 17.2%, still greater than 1 in 6 people. At each time point, it is those workers at either end of the age range for the working population of the UK that report relatively little occupational stress. Those within the age range of 25 to 54, and in particular, those who are aged 45 to 54 are most likely to report relatively high levels of perceived work stress. This pattern is reproduced at both time points.

Table 15
Stress at work by age Time 1

	Low work stress	High work stress	Total
18-24	291 (88.4%)	38 (11.6)	329 (100)
25-34	782 (81.5)	178 (18.5)	960 (100)
35-44	922 (79.3)	240 (20.7)	1162 (100)
45-54	786 (78.5)	215 (21.5)	1001 (100)
55-64	393 (86.0)	64 (14.0)	457 (100)
65-74	59 (92.2)	5 (7.3)	64 (100)
75+	7 (100)	0 (0)	7 (100)
Total	3240 (81.4)	740 (19.6)	3980 (100)

Stress at work by age Time 2

	Low work stress	High work stress	Total
18-24	105 (88.2%)	14 (11.7)	119 (100)
25-34	327 (81.5)	74 (18.5)	401 (100)
35-44	488 (81.9)	108 (18.1)	596 (100)
45-54	394 (80.7)	94 (19.3)	488 (100)
55-64	170 (87.2)	25 (12.8)	195 (100)
65-74	33 (100)	0 (0)	33 (100)
75+	2 (100)	0 (0)	2 (100)
Total	1519 (82.8)	315 (17.2)	1834 (100)

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The series of tables below depict rates of reporting of perceived work stress, by gender, work status and age category. Looking at the data for males, it is clear that levels of perceived stress are higher for those in full-time work compared to those who work part-time. Furthermore, the data indicate that over both time points, it is full-time employed respondents between the ages of 35 and 54 who are likely to report relatively high levels of perceived work stress.

For female respondents, a similar pattern of findings is displayed. Part-time workers are less likely to report higher levels of perceived work stress compared with full-time workers. Furthermore, it is full-time respondents between the ages of 25 to 54 who are more likely to report relatively high levels of perceived work stress.

When comparing the pattern of response for males with that pattern reported for females, clear findings emerge. Although it is clear that perceived work stress is more of a problem for full-time workers between the ages of 25-54 for both genders, a greater proportion female respondents identify work stress as a problem in these groups than male respondents. For example, full-time workers, aged 45-54, at Time 1 reporting high work stress: males = 21.2%, females = 31.8%.

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Table 16
Stress at work by gender, age and work type

Males at Time 1

		Low work stress	High work stress	Total
	Age			
Full-time	**18-24**	106 (89.8%)	12 (10.2)	118 (100)
	25-34	346 (80.1)	86 (19.9)	432 (100)
	35-44	408 (77.0)	122 (23)	530 (100)
	45-54	357 (78.8)	96 (21.2)	453 (100)
	55-64	209 (85.3)	36 (14.7)	245 (100)
	65-74	16 (94.1)	1 (5.9)	17 (100)
	75+	2 (100)	0 (0)	2 (100)
	Total	1444 (81.2)	353 (18.8)	1779 (100)
Part-time	**18-24**	17 (89.5)	2 (10.5)	19 (100)
	25-34	12 (92.3)	1 (7.7)	13 (100)
	35-44	14 (93.3)	1 (6.7)	15 (100)
	45-54	19 (95.0)	1 (5.0)	20 (100)
	55-64	40 (95.2)	2 (4.8)	42 (100)
	65-74	27 (100)	0 (0)	27 (100)
	75+	3 (100)	0 (0)	3 (100)
	Total	132 (95.0)	7 (5.0)	139 (100)

Males at Time 2

		Low work stress	High work stress	Total
	Age			
Full-time	**18-24**	30 (85.7%)	5 (14.3)	35 (100)
	25-34	124 (83.8)	24 (16.2)	148 (100)
	35-44	192 (81.4)	44 (18.6)	236 (100)
	45-54	160 (79.2)	42 (20.8)	202 (100)
	55-64	81 (82.7)	17 (17.3)	98 (100)
	65-74	8 (100)	0 (0)	8 (100)
	75+	0 (0)	0 (0)	0 (0)
	Total	595 (81.8)	132 (18.8)	727 (100)
Part-time	**18-24**	5 (100)	0 (0)	5 (100)
	25-34	6 (100)	0 (0)	6 (100)
	35-44	9 (100)	0 (0)	9 (100)
	45-54	9 (90)	1 (10)	10 (100)
	55-64	23 (100)	0 (0)	23 (100)
	65-74	13 (100)	0 (0)	13 (100)
	75+	1 (100)	0 (0)	1 (100)
	Total	66 (89.6)	1 (10.4)	67 (100)

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Table 17
Females at Time 1

	Age	Low work stress	High work stress	Total
Full-time	**18-24**	121 (85.8%)	20 (14.2)	141 (100)
	25-34	275 (78.3)	76 (21.7)	351 (100)
	35-44	237 (72.5)	90 (27.5)	327 (100)
	45-54	214 (68.2)	100 (31.8)	314 (100)
	55-64	56 (81.2)	13 (18.8)	69 (100)
	65-74	3 (60.0)	2 (40.0)	5 (100)
	75+	0 (0)	0 (0)	0 (0)
	Total	906 (75.1)	301 (24.9)	1207 (100)
Part-time	**18-24**	47 (92.2)	4 (7.8)	51 (100)
	25-34	149 (90.1)	15 (9.9)	164 (100)
	35-44	263 (90.1)	27 (9.9)	290 (100)
	45-54	196 (91.2)	18 (8.8)	214 (100)
	55-64	88 (87.1)	13 (6.9)	101 (100)
	65-74	13 (86.7)	2 (3.3)	15 (100)
	75+	2 (100)	0 (0)	2 (100)
	Total	758 (90.6)	79 (9.4)	837 (100)

Females at Time 2

	Age	Low work stress	High work stress	Total
Full-time	**18-24**	58 (87.9%)	8 (12.1)	66 (100)
	25-34	109 (72.2)	42 (27.8)	151 (100)
	35-44	145 (73.6)	52 (26.4)	197 (100)
	45-54	128 (72.7)	48 (27.3)	176 (100)
	55-64	26 (81.3)	6 (18.7)	32 (100)
	65-74	2 (100)	0 (0)	2 (100)
	75+	0 (0)	0 (0)	0 (0)
	Total	468 (75.0)	156 (25.0)	624 (100)
Part-time	**18-24**	12 (92.3)	1 (7.7)	13 (100)
	25-34	88 (91.7)	8 (8.3)	96 (100)
	35-44	142 (92.2)	12 (7.8)	154 (100)
	45-54	97 (97.0)	3 (3.0)	100 (100)
	55-64	40 (95.2)	2 (4.8)	42 (100)
	65-74	10 (100)	0 (0)	10 (100)
	75+	1 (100)	0 (0)	1 (100)
	Total	390 (93.8)	26 (6.2)	416 (100)

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Table 18 depicts the age-standardised percentages for reported work stress (and their confidence intervals) at both Time 1 and Time 2. This table gives supporting evidence to the pattern that female respondents are more likely to report higher levels of work stress, especially when considering those in full-time work only.

In terms of number of people stressed at work, the levels found in our survey suggest that there are approximately 5 million very stressed workers in the UK (based on the following estimates of the numbers working):

Males –	Full-time employment:	13,386,000
	Part-time employment:	1,328,000
Females-	Full-time employment:	6,592,000
	Part-time employment:	5,367,000

(Source "Social Trends 28" 1998 edition, Office for National Statistics)

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Table 18
Age-standardised (95% confidence interval) percentage for work stress at Time 1 and Time 2

	Full-time workers			Part-time workers			All those in paid work		
	Males	**Females**	**Both**	**Males**	**Females**	**Both**	**Males**	**Females**	**Both**
Time 1	18.6 (16.8, 20.4)	23.9 (21.5, 26.4)	20.7 (19.2, 22.1)	6.8 (1.1, 12.5)	9.2 (7.1, 11.4)	8.9 (7.0, 10.8)	18.1 (16.3, 19.8)	17.8 (16.1, 19.5)	17.9 (16.7, 19.1)
Time 2	21.0 (17.6, 24.5)	30.7 (26.7, 34.7)	25.4 (22.8, 28.0)	2.2 (-1.9, 6.4)*	7.0 (3.6, 10.4)	6.2 (3.6, 8.9)	19.5 (16.3, 22.8)	20.1 (17.4, 22.8)	20.0 (17.9-22.0)

- This figure is based on only 1 stressed part-time male worker

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RELATIONSHIP BETWEEN WORK STRESS AS MEASURED BY THE STRESS & HEALTH STUDY SINGLE ITEM, AND THE KARASEK SCALE

In this section we report the degree of relationship between the single item measure of perceived work stress and an established work stress measurement instrument - the Karasek Role Strain model. This enables us to establish whether our measure of work stress is an adequate instrument that sufficiently encapsulates the properties of the more complex and established scale.

The table below presents the test-retest matrix for the five Karasek subscales, giving us an estimate as to the reliability of the established validating instrument, using this working sample. Only those who were working at both Time 1 and Time 2 were included in these analyses.

Table 19
Reliability of the Karasek subscales

Karasek Subscale	*Spearman's Rho*	*N*
Skill discretion	.47	1748
Job Demand	.50	1732
Work social support	.60	1747
Decision authority	.72	1705
Decision latitude	.68	1683

The table shows that there is a reasonable to good level of association over time between the various subscales for the Karasek scale measuring job strain. This indicates that the Karasek scale has a reasonable level of internal consistency.

The following tables present the associations between the various Karasek subscales and the single item measure of perceived work stress as measured by the Bristol Stress & Health Study. For each time point, only those who stated they were in paid jobs were included in the analyses.

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Table 20
Relationship between single item work stress measures and dimensions of the Karasek Scale

	Karasek Subscale				
	Skill discretion	Job demand	Work social support	Decision authority	Decision latitude
Work stress Time 1	.21* (3975)	.31* (3945)	-.12* (3960)	.02 (3920)	.12* (3883)
Work stress Time 2	.22* (1827)	.35* (1825)	-.14* (1834)	.02 (1815)	.10* (1800)

denotes $p < .01$

The tables show that the single item measure of perceived work stress is related most strongly to the subscale of job demand, at both Time 1 and Time 2. It is is also significantly related to some of the other subscales of the Karasek scale, but to a lesser degree.

Also noteworthy is the lack of relationship between the single item measure and the subscale that measures decision authority.

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ASSOCIATIONS BETWEEN WORK CHARACTERISTICS AND WORK STRESS AT TIME 1

This section describes the associations between work characteristics and work stress, for each question asked in the survey, they are presented in the order in which they appeared in the questionnaire. Only the data for those indicating that they were in paid employment are presented.

In these analyses, the responses are grouped according to category of work stress (High / Low). The number of respondents endorsing each category is indicated, along with percentage of total respondent in each group (either high or low work stress).

HOURS OF WORK

The first set of analyses addresses questions that ask the respondents about their hours of work.

Q 6.1a) Do you work at night?

There is a significant difference between work stress groups. Those respondents with high work stress are likely to also report working at night more frequently than those in the low stress group. Chi-Square = 39.85, 3 df, $p<.001$

Q 6.1b) Do you do shift work?

Those respondents who have high work stress are more likely to report working in shift patterns than those who have low work stress. Chi-Square = 13.12, 3 df, $p<.005$

Q 6.1c) Do you have to work long or unsociable hours?

A greater proportion of people who report high work stress report indicate that they work long or unsociable hours compared to those who report low work stress.
Chi-Square = 177.69, 3 df, $p<.001$

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Q 6.1d) Do you have unpredictable working hours?

A greater proportion of people who report high work stress indicate that they work unpredictable hours compared to those who report low work.

Chi-Square = 118.82, 3 df, $p<.001$

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Table 21
Hours of work by work stress at Time 1

		Often		Sometimes		Seldom		Never / almost never		Total	Significance
		N	%	N	%	N	%	N	%	N	(p value)
Do you work at night?	Low Work Stress	374	11.5	451	13.8	233	7.1	2207	67.6	3265	<.005
	High Work Stress	129	17.4	131	17.7	67	9.0	414	55.9	741	
Do you do shift work?	Low Work Stress	411	12.7	98	3.0	58	1.8	2665	82.5	3232	<.005
	High Work Stress	106	14.5	40	5.5	15	2.0	572	78.0	733	
Do you have to work long or unsociable hours?	Low Work Stress	603	18.5	633	19.4	308	9.4	1719	52.7	3263	<.001
	High Work Stress	260	34.6	215	28.6	76	10.1	200	26.6	751	<.001
Do you have to work unpredictable working hours?	Low Work Stress	363	11.1	624	19.1	360	11.0	1913	58.7	3260	<.001
	High Work Stress	155	20.9	208	28.0	100	13.5	280	37.7	743	

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PHYSICAL AGENTS AT WORK

Q 6.1e) Does your job ever expose you to breathing fumes, dusts or other potentially harmful substances?

Responses show that a higher proportion of people in the work stress group are often exposed to fumes, dusts or other potentially harmful substances than in the low work stress groups. Chi-Square = 9.65, 3 df, $p<.05$

Q6.1f) Does your job require you to handle or touch potentially harmful substances or materials?

The table below indicates that there is no significant difference between stress groups with respect to the frequency with which workers are required to handle or touch potentially harmful substances. Chi-Square = 2.84, 3 df, $p>.10$

Q6.1g) Do you ever have work tasks that leave you with a ringing in your ears or a feeling of temporary deafness?

Although there is a significant difference between groups on tasks that leave workers with a ringing in ears or temporary deafness, the overall reporting of this is relatively low. Chi-Square = 13.90, 3 df, $p<.005$

Q6.1h) Do you work in an environment where the level of background noise disturbs your concentration?

There is a significant difference between the work stress groups, with those that report high work stress also reporting that there is often a level of background noise in the environment that disturbs their concentration. Chi-Square = 100.75, 3 df, $p<.0001$

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Table 22
Physical agents at work by work stress at Time 1

		Often		Sometimes		Seldom		Never / almost never		Total	Significance
		N	%	N	%	N	%	N	%	N	
Does your job ever expose you to breathing fumes, dusts or other potentially harmful substances?	Low Work Stress	391	11.9	428	13.1	314	9.6	2141	65.4	3274	<.05
	High Work Stress	115	15.5	87	11.7	56	7.5	486	65.3	744	
Does your job require you to handle or touch potentially harmful substances or materials?	Low Work Stress	246	7.5	433	13.2	302	9.2	2290	70.0	3271	Ns
	High Work Stress	64	8.6	110	14.8	62	8.3	507	68.2	743	
Do you ever have work tasks that leave you with a ringing in your ears or a feeling of temporary deafness?	Low Work Stress	50	1.5	161	5.0	175	5.4	2849	88.1	3235	<.005
	High Work Stress	26	3.5	40	5.4	46	6.2	627	84.8	739	
Do you work in an environment where the level of background noise disturbs your concentration?	Low Work Stress	153	4.7	557	17.2	427	13.2	2100	64.9	3237	<.001
	High Work Stress	100	13.5	153	20.7	115	15.6	371	50.2	739	

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CHARACTERISTICS OF JOB

The next set of analyses further explore questions that ask the respondents more about characteristics of their job.

Q7.1a) Do you have to work very fast?

The majority (55%) of high stressed workers report that they often have to work very fast in their jobs, compared to 30% of the low stressed workers. This is a significant difference. Chi-Square = 175.48, 3 df, $p<.001$

Q7.1b) Do you have to work very intensively?

Results show that there is a highly significant difference between work stress groups. 68% of the work stress groups often have to work very intensively, whereas 38% of the low work stress group endorse the same level of work intensity.
Chi-Square = 318.98, 3 df, $p<.001$

Q7.1c) Do you have enough time to do everything?

Workers in the low stress group indicate that they are more likely to have enough time to do everything at work compared to the high stress group.
Chi-Square = 350.73, 3 df, $p<.001$

Q7.1d) Are your tasks such that others can help you if you do not have enough time?

The significant difference between work stress indicates that the low stress group is more likely to have tasks that others can help them with if they do not have enough time compared to those in the high stress group. Chi-Square = 94.50, 3 df, $p<.001$

Q7.1e) Do you have the possibility of learning new things through your work?

Responses indicate that both work groups have an equal and relatively good opportunity to learn new things through work. Chi-Square = 2.02, 3 df, $p>.10$

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Q7.1f) Does your work demand a high level of skill or expertise?

There is a significant difference between the work stress groups. Workers with high occupational stress are more likely to feel that their work often demands a high level of skill or expertise. Chi-Square = 140.08, 3 df, $p<.001$

Q7.1g) Does you job require you to take the initiative?

A higher proportion of the high stress group indicate that their job often requires them to take the initiative in their work (85% to 64%). This is a significant difference.
Chi-Square = 117.84, 3 df, $p<.001$

Q7.1h) Do you have to do the same thing over and over again?

Compared to those in the high stress group, the workers in the low stress group are significantly more likely to report that they often have to do the same thing in their work over and over again. Chi-Square = 14.99, 3 df, $p<.005$

Q7.1I) Do you have a choice in deciding how you do your work?

There is no difference between the work stress groups, with about 80% of each group reporting that they often or sometimes have a choice in deciding how they do their work. Chi-Square = 0.43, 3 df, $p>.10$

Q 7.1j) Do you have a choice in deciding what you do at work?

Both groups report an equal distribution concerning their freedom to decide what they do at work. Chi-Square = 1.07, 3 df, $p>.10$

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Table 23
Characteristics of job by work stress at Time 1

		Often		Sometimes		Seldom		Never / almost never		Total	Significance
		N	%	N	%	N	%	N	%	N	
Do you have to work very fast?	Low Work Stress	913	30.0	1635	53.8	307	10.0	184	6.1	3039	<.001
	High Work Stress	398	55.4	277	38.5	32	4.5	12	1.7	719	
Do you have to work intensively?	Low Work Stress	1011	32.8	1528	49.5	326	10.6	222	7.2	3087	<.001
	High Work Stress	498	68.0	202	27.6	21	2.9	11	1.5	732	
Do you have enough time to do everything?	Low Work Stress	951	30.9	1081	35.1	714	23.2	334	10.8	3080	<.001
	High Work Stress	72	9.8	170	23.0	250	33.9	246	33.3	738	
Are your tasks such that others can help you if you do not have enough time?	Low Work Stress	722	24.2	1362	45.6	465	15.6	436	14.6	2985	<.001
	High Work Stress	71	10.0	317	44.6	164	23.1	159	22.4	711	<.001
Do you have the possibility of learning new things through work?	Low Work Stress	1233	39.7	1288	41.5	322	10.4	263	8.5	3106	Ns
	High Work Stress	306	41.6	306	41.6	69	9.4	54	7.3	735	

(contd)

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Table 23 (Contd)

		Often		Sometimes		Seldom		Never / almost never		Total	Significance
		N	%	N	%	N	%	N	%	N	
Does your work demand a high level of high skill or expertise?	Low Work Stress	1485	47.9	996	32.1	362	11.7	256	8.3	3099	<.001
	High Work Stress	516	69.7	185	25.0	19	2.6	20	2.7	740	
Does your job require you to take the initiative	Low Work Stress	2073	64.4	858	26.6	192	6.0	98	3.0	3221	<.001
	High Work Stress	630	84.6	98	13.2	14	1.9	3	.4	745	
Do you have to do the same thing over and over again?	Low Work Stress	1494	46.7	1075	33.6	470	14.7	161	5.0	3200	<.005
	High Work Stress	287	39.0	275	37.4	127	17.3	47	6.4	736	
Do you have a choice in deciding how you do your work?	Low Work Stress	1638	51.7	999	31.5	253	8.0	279	8.8	3169	
	High Work Stress	372	50.6	240	32.7	57	7.8	66	9.0	735	Ns
Do you have a choice in deciding what you do at work?	Low Work Stress	789	25.6	1018	33.0	571	18.5	706	22.9	3084	Ns
	High Work Stress	194	26.9	243	33.7	128	17.8	156	21.6	721	

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CONTROL AND DECISION LATITUDE

The next set of questions and results examine the worker's control and decision latitude. Each respondent was asked to indicate how often the following statements applied.

Q8.1a) Others take decisions concerning my work

There is no significant difference between the work stress groups concerning the frequency that others take decisions concerning their work.
Chi-Square = 2.03, 3 df, p>.10

Q8.1b) I have a great deal of say in decisions about my work

There is a marginally significant difference between the work stress groups, where those in the high stress group indicate that they have a great deal of say in decisions about their work more often than those with low work stress. Chi-Square = 6.97, 3 df, p=.07

Q8.1c) I have a say in my work speed

There is a greater proportion of workers with low work stress indicating that they often have a say in their work speed compared to those workers with high occupational stress. Chi-Square = 25.55, 3 df, p<.001

Q8.1d) My working time can be flexible

A significantly greater proportion of low stress workers indicate that their working time is often flexible than high stress workers. Chi-Square = 8.06, 3 df, p<.05

Q8.1e) I can decide when to take a break

Responses show that a greater proportion of those in the low stress group often decide when to take a break at work, when compared to those that have high work stress.
Chi-Square = 13.36, 3 df, p<.005

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Q8.1f) I can take my holidays more or less when I wish

Compared to those in the high work stress group, workers in the low stress group are more likely to say that they can often take their holidays more or less when they wish. Chi-Square = 78.63, 3 df, $p<.001$

Q8.1g) I have a say in choosing who I work with

There is no significant association between level of work stress and whether individuals have a say in choosing who they work with. Chi-Square = 1.93, 3 df, $p>.10$

Q8.1h) I have a great deal of say in planning my work environment

There is no significant association between level of work stress and whether individuals have a say in planning their work environment. Chi-Square = 1.45, 3 df, $p>.10$

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Table 24
Control and decision latitude by work stress at Time 1

		Often		Sometimes		Seldom		Never / almost never		Total	Significance
		N	%	N	%	N	%	N	%	N	
Others take decisions concerning my work	Low Work Stress	883	28.5	1439	46.4	477	15.4	302	9.7	3101	Ns
	High Work Stress	195	27.0	344	47.7	120	16.6	62	8.6	721	
I have a great deal of say in decisions about my work	Low Work Stress	1421	45.2	997	31.7	476	15.2	247	7.9	3141	.07
	High Work Stress	369	50.3	211	28.7	95	12.9	59	8.0	734	
I have a say in my work speed	Low Work Stress	1471	49.0	955	31.8	368	12.3	209	7.0	3003	<.001
	High Work Stress	292	41.5	222	31.5	111	15.8	79	11.2	704	
My working time can be flexible	Low Work Stress	924	30.7	926	30.7	445	14.8	719	23.9	3014	<.05
	High Work Stress	183	26.3	210	30.2	107	15.4	196	28.2	696	
I can decide when to take a break	Low Work Stress	1623	52.7	661	21.5	256	8.3	537	17.5	3077	<.005
	High Work Stress	326	45.7	163	22.8	75	10.5	150	21.0	714	
I can take my holidays more or less when I wish	Low Work Stress	1852	58.4	794	25.0	206	6.5	320	10.1	3172	<.001
	High Work Stress	309	42.8	203	28.1	72	10.0	138	19.1	722	

(contd)

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Table 24 (contd)

		Often		Sometimes		Seldom		Never / almost never		Total	Significance
		N	%	N	%	N	%	N	%	N	
I have a say in choosing who I work with	Low Work Stress	420	15.5	555	20.4	558	20.6	1182	43.5	2715	Ns
	High Work Stress	98	14.6	128	19.1	132	19.7	311	46.5	669	
I have a great deal of say in planning my work environment	Low Work Stress	678	23.4	691	23.9	602	20.8	926	32.0	2897	Ns
	High Work Stress	165	23.3	170	24.0	134	19.0	238	33.7	707	

CONSISTENCY AND CLARITY AT WORK

The next set of questions and responses are about the respondent's perceptions about consistency and clarity of work. Each respondent was asked to indicate how often the following statements applied.

Q8.2a) Do different groups demand things from you that you think are hard to combine?

When compared to the responses of the low stress group, a significantly greater proportion of the high stress group often found that different groups demand things that they think are hard to combine. Chi-Square = 238.17, 3 df, $p<.001$

Q8.2b) Do you get sufficient information from line management (your superiors)?

A significantly smaller proportion of the high stress workers feel that they often get sufficient information from line management when compared with the low stress group. Chi-Square = 75.47, 3 df, $p<.001$

Q8.2c) Do you get consistent information from line management (your superiors)?

A significantly smaller proportion of the high stress workers feel that they often get consistent information from line management when compared with the low stress group. Chi-Square = 77.61, 3 df, $p<.001$

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Table 25
Consistency and clarity at work by work stress at Time 1

		Often		Sometimes		Seldom		Never / almost never		Total	Significance
		N	%	N	%	N	%	N	%	N	
Do different groups demand things from you that you think are hard to combine?	Low Work Stress	385	14.2	1179	43.4	655	24.1	499	18.4	2718	<.001
	High Work Stress	256	37.5	297	43.5	76	11.1	53	7.8	682	
Do you get sufficient information from line management?	Low Work Stress	1003	34.9	1211	42.2	459	16.0	199	6.9	2872	<.001
	High Work Stress	142	21.1	281	41.8	176	26.2	74	11.0	673	
Do you get consistent information from line management?	Low Work Stress	903	31.5	1232	43.0	528	18.4	203	701	2866	<.001
	High Work Stress	127	19.0	267	39.9	201	30.0	75	11.2	670	

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JOB INVOLVEMENT

The next set of questions and responses are about the respondent's perceptions about their job involvement. Each respondent was asked to indicate how often the following statements applied.

Q8.3a) Does your job provide you with a variety of interesting things to do?

The high stress group reported that their job often provided them with a variety of interesting things to do at a significantly higher level than the low stress group.
Chi-Square = 16.65, 3 df, p=.001

Q8.3b) Is your job boring?

The high stress group reported that their job was never or almost never boring at a significantly higher level than the low stress group. Chi-Square = 12.64, 3 df, p=.005

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Table 26
Job involvement by work stress at Time 1

		Often		Sometimes		Seldom		Never / almost never		Total	Significance
		N	%	N	%	N	%	N	%	N	
Does your job provide you with a variety of interesting things to do?	Low Work Stress	1430	44.6	1214	37.9	354	11.0	208	6.5	3206	.001
	High Work Stress	386	52.7	240	32.8	62	8.5	44	6.0	732	.001
Is your job boring?	Low Work Stress	308	9.6	1182	36.9	766	23.9	946	29.5	3202	.005
	High Work Stress	62	8.5	232	31.8	174	23.9	261	35.8	729	

SUPPORT AT WORK

The following set of questions asked respondents about difficulties at work due to lack of support. Each respondent was asked to indicate how often the following statements applied.

Q8.4a) How often do you get help and support from colleagues?

A significantly lower proportion of the high stress group reported that they often got help and support from their colleagues when compared with the low stress group.
Chi-Square = 36.31, 3 df, $p<.001$

Q8.4b) How often are your colleagues willing to listen to your work problems?

People in the high work stress group reported that they their colleagues were often willing to listen to work problems at a lower rate than those in the low stress group. This was a highly significant difference. Chi-Square = 49.28, 3 df, $p<.001$

Q8.4c) How often do you get help and support from your immediate superior?

A significantly lower proportion of the high stress group reported that they often got help and support from their immediate superior when compared with the low stress group. Chi-Square = 61.00, 3 df, $p<.001$

Q8.4d) How often is your immediate superior willing to listen to your problems?

People in the high work stress group reported that they their immediate superior was often willing to listen to work problems at a lower rate than those in the low stress group. This was a highly significant difference. Chi-Square = 68.14, 3 df, $p<.001$

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Table 27
Support at work by work stress at Time 1

		Often		Sometimes		Seldom		Never / almost never		Total	Significance
		N	%	N	%	N	%	N	%	N	
How often do you get help and support from colleagues?	Low Work Stress	1478	48.2	1236	40.3	265	8.6	88	2.9	3067	<.001
	High Work Stress	273	37.3	329	45.0	93	12.7	36	4.9	731	
How often are your colleagues willing to listen to your work problems?	Low Work Stress	1583	52.8	1040	34.7	265	8.8	112	3.7	3000	<.001
	High Work Stress	283	39.3	296	41.1	103	14.3	39	5.4	721	
How often do you get help and support from your immediate superior?	Low Work Stress	1130	38.9	1180	40.6	442	15.2	155	5.3	2907	<.001
	High Work Stress	174	25.6	286	42.1	160	23.5	60	8.8	680	
How often is your immediate superior willing to listen to your problems?	Low Work Stress	1416	49.0	1019	35.3	310	10.7	145	5.0	2890	<.001
	High Work Stress	227	33.4	273	40.2	117	17.2	62	9.1	679	

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JOB SATISFACTION

The following questions were further general explorations about the respondent's job. They were asked to rate their satisfaction with the following work-related issues. Each respondent was asked to indicate how satisfied they were with the following.

Q8.5a) Your usual take home pay

A greater proportion of the high stress group were either dissatisfied or very dissatisfied with their usual take home pay when compared with the low stress group. This was a significant difference. Chi-Square = 45.86, 3 df, $p<.001$

Q8.5b) Your work prospects

A greater proportion of the low stress group were either satisfied or very satisfied with their work prospects when compared with the high stress group. This was a significant difference. Chi-Square = 51.77, 3 df, $p<.001$

Q8.5c) The people you work with

Those in the low stress group were significantly more likely to be satisfied or very satisfied with the people they worked with than those in the high stress.
Chi-Square = 75.96, 3 df, $p<.001$

Q8.5d) Physical working conditions

A significantly greater proportion of those in the low stress group were either satisfied or very satisfied with their physical working conditions when compared to those in the high stress group. Chi-Square = 135.76, 3 df, $p<.001$

Q8.5e) The way your section is run

Those in the high work stress group were significantly more likely to be dissatisfied with the way their section is run. Chi-Square = 95.04, 3 df, $p<.001$

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Q8.5f) The way your abilities are used

There is a significantly greater level of dissatisfaction with the way in which the respondents abilities are used in the high stress group compared to the low stress group. Chi-Square = 43.56, 3 df, $p<.001$

Q8.5g) The interest and skill involved in your job

There is no significant difference between the groups in the interest and skill involved in their jobs. Chi-Square = 1.30, 3 df, $p>.10$

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Table 28
Job satisfaction by work stress at Time 1

		Very satisfied		Satisfied		Dissatisfied		Very dissatisfied		Total	Significance
		N	%	N	%	N	%	N	%	N	
Your usual take home pay	Low Work Stress	360	11.3	1919	60.0	753	23.5	167	5.2	3199	<.001
	High Work Stress	76	10.4	370	50.5	207	28.2	80	10.9	733	
Your work prospects	Low Work Stress	269	8.9	1891	62.5	680	22.5	187	6.2	3027	<.001
	High Work Stress	66	9.3	353	49.5	212	29.7	82	11.5	713	
The people you work with	Low Work Stress	872	28.0	1964	63.0	248	8.0	34	1.1	3118	<.001
	High Work Stress	149	20.7	428	59.4	121	16.8	22	3.1	720	
Physical working conditions	Low Work Stress	533	16.8	2088	65.6	478	15.0	82	2.6	3181	<.001
	High Work Stress	79	10.9	389	53.4	197	27.1	63	8.7	728	
The way your section is run	Low Work Stress	380	13.1	1807	62.5	604	20.9	102	3.5	2893	<.001
	High Work Stress	63	9.2	331	48.5	231	33.8	58	8.5	683	
The way your abilities are used	Low Work Stress	432	13.8	1937	61.9	624	19.9	135	4.3	3128	<.001
	High Work Stress	71	9.9	391	54.5	200	27.9	56	7.8	718	
The interest and skill involved in your job	Low Work Stress	656	20.9	1968	62.7	407	13.0	110	3.5	3141	Ns
	High Work Stress	163	22.4	448	61.6	88	12.1	28	3.9	727	

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ATTITUDES TO WORK

The next section contained questions that asked the respondents to agree or disagree with various statements about how they felt about their jobs.

Q8.6a) If a task has to be done well, I'd better take care of it myself

A significantly higher proportion of the high stress group agreed that if a task has to be done well, they had better take care of it themselves. Chi-Square = 11.53, 3 df, $p<.01$

Q8.6b) I can get very upset when someone hinders me in my duties

A significantly higher proportion of the high stress group indicated that they can get very upset when someone hinders them in their duties. Chi-Square = 115.40, 3 df, $p<.001$

Q8.6c) As soon as I get up in the morning I start thinking about work problems

A much larger proportion of the high stress group agreed that as soon as they get up in the morning they start thinking about work problems. This was a highly significant difference. Chi-Square = 482.36, 3 df, $p<.001$

Q8.6d) When I come home, I can easily relax and 'switch off' from work

A far lower proportion of the high stress group indicated that they could successfully 'switch off' and relax when they came home from work. Chi-Square = 436.09, 3 df, $p<.001$

Q8.6e) People close to me say I sacrifice too much for my job

Those in the high stress group agreed more often with the idea that people close to them said that they sacrificed too much for their job. This was a highly significant difference. Chi-Square = 262.01, 3 df, $p<.001$

Q8.6f) For me, family or private life comes first, then work

The respondents in the low stress group were much more likely to agree that family or private life came first, before work. Chi-Square = 98.21, 3 df, $p<.001$

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Q8.6g) Work rarely lets me go, it is still on my mind when I go to bed.

A significantly greater proportion of those in the high stress group agreed that work rarely lets them go, and that it is still on their mind when they go to bed.
Chi-Square = 592.94, 3 df, $p<.001$

Q 8.6h) Every once in a while I like it when others hold me back from working

The respondents in the high stress group were significantly more likely to agree that every once in a while they liked it when others hold them back from working.
Chi-Square = 47.42, 3 df, $p<.001$

Q8.6i) If I postpone something that I was supposed to do today, I will have trouble sleeping at night

Those respondents in the high stress group were far more likely to agree that if they postpone something they are supposed to do today, they will have trouble sleeping at night. Chi-Square = 280.49, 3 df, $p<.001$

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Table 29
Attitudes to work by work stress at Time 1

		Agree		Somewhat agree		Somewhat disagree		Disagree		Total	Significance
		N	%	N	%	N	%	N	%	N	
If a task has to be done well, I'd better take care of it myself	Low Work Stress	1415	43.5	1303	40.1	359	11.0	175	5.4	3252	<.01
	High Work Stress	369	49.4	277	37.1	76	10.2	25	3.3	747	
I can get very upset when someone hinders me in my duties	Low Work Stress	783	24.2	1407	43.4	638	19.7	414	12.8	3242	<.001
	High Work Stress	312	41.8	303	40.6	80	10.7	51	6.8	746	
As soon as I get up in the morning I start thinking about work problems	Low Work Stress	415	12.8	782	24.0	811	24.9	1246	38.3	3254	<.001
	High Work Stress	334	44.8	209	28.1	103	13.8	99	13.3	745	
When I come home, I can easily relax and 'switch off' from work	Low Work Stress	1497	45.9	945	29.0	585	18.0	232	7.1	3259	<.001
	High Work Stress	128	17.1	171	22.9	237	31.7	212	28.3	748	
People close to me say I sacrifice too much for my job	Low Work Stress	401	12.3	706	21.7	687	21.1	1459	44.9	3253	<.001
	High Work Stress	230	30.9	230	30.9	148	19.9	136	18.3	744	
For me, family or private life comes first, then work	Low Work Stress	2019	62.0	799	24.5	339	10.4	99	3.0	3256	<.001
	High Work Stress	321	43.1	250	33.6	124	16.6	50	6.7	745	

(contd)

Table 29 contd

		Agree		Somewhat agree		Somewhat disagree		Disagree		Total	Significance
		N	%	N	%	N	%	N	%	N	
Work rarely lets me go, it is still on my mind when I go to bed.	Low Work Stress	232	7.1	726	22.3	769	23.6	1531	47.0	3258	<.001
	High Work Stress	259	34.7	263	35.3	116	15.5	108	14.5	746	
Every once in a while I like it when others hold me back from working	Low Work Stress	569	17.7	1027	31.9	693	21.5	934	29.0	3223	<.001
	High Work Stress	170	23.1	293	39.8	138	18.7	136	18.5	737	
If I postpone something that I was supposed to day, I will have trouble sleeping at night	Low Work Stress	270	8.3	684	21.0	749	23.0	1555	47.7	3258	<.001
	High Work Stress	192	25.8	239	32.1	139	18.7	175	23.5	745	

PRESSURES AT WORK

The following questions continue to explore the respondent's feelings about their work. They were asked whether they agreed or disagreed with a series of statements.

Q8.7a) I have constant time pressure due to a heavy workload

Those in the high stress group are significantly more likely to report constant time pressure due to a heavy workload compared to those in the low stress group.
Chi-Square = 359.89, 1 df, $p<.001$

Q8.7b) I have many interruptions and disturbances in my job.

An overwhelming majority of respondents in the high stress group report many interruptions and disturbances in their job, and this is significantly different to the level of reporting in the low stress group. Chi-Square = 189.25, 1 df, $p<.001$

Q8.7c) I have a lot of responsibility in my job

Those in the high stress group are significantly more likely to agree that their jobs have a lot of responsibility, although the level of agreement is quite high in both groups.
Chi-Square = 156.01, 1 df, $p<.001$

Q8.7d) I am often under pressure to work overtime

Those in the high stress group report that they are under significantly more pressure to work overtime compared with those in the low stress group.
Chi-Square = 199.38, 1 df, $p<.001$

Q8.7e) I have experienced or expect to experience an undesirable change in my work situation

A significantly greater proportion of the respondents in the higher stress group indicate that they have experienced or expect to experience an undesirable change in their work situation than in the low stress group. Chi-Square = 131.15, 1 df, $p<.001$

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Q8.7f) My job promotion prospects are poor

There is little difference between the groups when asked about their prospects for promotion.
Chi-Square = 1.00, 1 df, p>.10

Q8.7g) My job security is poor

A significantly greater proportion of workers in the high stress group of workers indicate that they feel their job security is poor compared to those in the low stress group.
Chi-Square = 14.83, 1 df, p<.001

Q8.7h) I am treated unfairly at work

Around one quarter of those in the high stress group feel that they are treated unfairly at work, and this is significantly different to those in the low stress group.
Chi-Square = 151.27, 1 df, p<.001

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Table 30
Pressures at work by work stress at Time 1

		Yes		No		Total	Significance
		N	%	N	%	N	
I have constant time pressure due to a heavy workload	Low Work Stress	1539	49.8	1549	50.2	3088	<.001
	High Work Stress	624	89.1	76	10.9	700	
I have many interruptions and disturbances in my job.	Low Work Stress	1970	64.5	1084	35.5	3054	<.001
	High Work Stress	639	91.0	63	9.0	702	
I have a lot of responsibility in my job	Low Work Stress	2207	72.5	836	27.5	3043	<.001
	High Work Stress	661	94.7	37	5.3	698	
I am often under pressure to work overtime	Low Work Stress	933	30.1	2169	69.9	3102	<.001
	High Work Stress	411	58.2	295	41.8	706	
I have experienced or expect to experience an undesirable change in my work situation	Low Work Stress	882	28.4	2224	71.6	3106	<.001
	High Work Stress	358	50.8	347	49.2	705	
My job promotion prospects are poor	Low Work Stress	1712	55.3	1383	44.7	3095	Ns
	High Work Stress	408	57.4	303	42.6	711	
My job security is poor	Low Work Stress	681	21.6	2473	78.4	3154	<.001
	High Work Stress	202	28.3	512	71.7	714	
I am treated unfairly at work	Low Work Stress	286	9.0	2892	91.0	3178	<.001
	High Work Stress	183	25.6	533	74.4	716	

Q8.8a) Considering all my efforts and achievements, my work prospects are adequate

When considering efforts and achievements at work, a significantly lower proportion of the high stress group feel that their work prospects are adequate.
Chi-Square = 36.23, 1 df, p<.001

Q8.8b) I receive the respect I deserve from my superiors and colleagues

A significantly lower proportion of the high stress group feel that they receive the respect they deserve from their superiors and colleagues when compared to the responses of the low stress group. Chi-Square = 63.12, 1 df, p<.001

Q8.8c) I experience adequate support in difficult situations

Those in the high stress group are significantly less likely to agree that they experience adequate support in difficult situations. Chi-Square = 169.27, 1 df, p<.001

Q8.8d) Considering all my efforts and achievements, I receive the respect and prestige I deserve at work.

Those in the high stress group are significantly less likely to agree that they receive the respect and prestige they deserve considering all their efforts and achievements at work. Chi-Square = 81.05, 1 df, p<.001

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Table 31
Support at work by work stress at Time 1

		Yes		No		Total	Significance
		N	%	N	%	N	
Considering all my efforts and achievements, my work prospects are adequate	Low Work Stress	2339	74.4	806	25.6	3145	<.001
	High Work Stress	454	63.2	264	36.8	718	
I receive the respect I deserve from my superiors and colleagues	Low Work Stress	2512	79.7	640	20.3	3152	<.001
	High Work Stress	476	65.9	246	34.1	722	
I experience adequate support in difficult situations	Low Work Stress	2519	80.0	630	20.0	3149	<.001
	High Work Stress	410	56.9	310	43.1	720	
Considering all my efforts and achievements, I receive the respect and prestige I deserve at work.	Low Work Stress	2287	72.5	867	27.5	3154	<.001
	High Work Stress	398	55.4	321	44.6	719	

RACIAL ABUSE, SEXUAL HARASSMENT AND BULLYING

The next set of questions explored whether the respondents had been affected emotionally or physically by the issues of racial abuse, sexual harassment, and bullying at work.

Q8.9a) Racial abuse at work

There was a significant difference showing that those respondents in the high stress group were more likely to be affected by racial abuse at work. However, the levels of responding overall were low, and there are low numbers of ethnic minority respondents in this survey. Chi-Square = 12.03, 1 df, p=.001

Q8.9b) Sexual harassment

There was a significant difference showing that those respondents in the high stress group were more likely to be affected by sexual harassment at work. However, the levels of responding overall were low. Chi-Square = 3.87, 1 df, $p<.05$

Q8.9c) Bullying at work

There was a significantly greater proportion of respondents in the high stress group agreeing that they had been physically or emotionally affected by bullying at work.
Chi-Square = 87.82, 1 df, $p<.001$

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Table 32
Racial abuse, sexual harassment and bullying by work stress at Time 1

		Yes		No		Total	Significance
		N	%	N	%	N	
Racial abuse at work	Low Work Stress	40	1.2	3187	98.8	3227	.001
	High Work Stress	22	3.0	711	97.0	733	
Sexual harassment	Low Work Stress	77	2.4	3147	97.6	3224	.05
	High Work Stress	27	3.7	708	96.3	735	
Bullying at work	Low Work Stress	178	5.5	3044	94.5	3222	.001
	High Work Stress	114	15.6	619	84.4	733	

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JOB SECURITY

Q8.10) Are you worried about losing your job?

There was a significant difference showing that those respondents in the high stress group were more likely to be worried about losing their job. Chi-Square = 98.78, 1 df, $p<.001$

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Table 33
Job security by work stress at Time 1

		Not at all worried		Mildly worried		Moderately worried		Very worried		Extremely worried		Total	Significance
		N	%	N	%	N	%	N	%	N	%	N	
Are you worried about losing your job?	Low Work Stress	1946	59.7	829	25.4	370	11.4	88	2.7	25	.8	3258	<.001
	High Work Stress	342	46.0	197	26.5	128	17.2	52	7.0	24	3.2	743	

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FAMILY / WORK INTERFACE

The next set of questions asked the respondent about how family life and family responsibilities interfered with job performance. Respondents were asked to indicate the degree to which they agreed with the following statements:

Q9.1a) Family matters reduce the time you can devote to your job

There was a significant difference showing that those respondents in the high stress group were more likely to agree that family matters reduced the time they could devote to their job. Chi-Square = 28.35, 1 df, $p<.001$

Q9.1b) Family worries or problems distract you from your work

Those respondents in the high stress group were significantly more likely to agree that family worries or problems distracted them from their work to some extent.
Chi-Square = 58.18, 1 df, $p<.001$

Q9.1c) Family activities stop you getting the amount of sleep you need to do your job well

Family activities stopped a significantly greater proportion of high work-stressed respondents getting the amount of sleep needed to do their job well.
Chi-Square = 33.67, 1 df, $p<.001$

Q9.1d) Family obligations reduce the time you need to relax or be by yourself

A significantly greater proportion of the high stress group feel that family obligations reduced the time they needed to relax or be by themselves, when compared to the responses of the low stress group. Chi-Square = 46.52, 1 df, $p<.001$

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Table 34
Family / work interface by work stress at Time 1

		Not at all		To some extent		A great deal		Total	Significance
		N	%	N	%	N	%	N	
Family matters reduce the time you can devote to your job	Low Work Stress	2155	68.7	805	25.7	175	5.6	3135	<.001
	High Work Stress	421	58.4	245	34.0	55	7.	721	
Family worries or problems distract you from your work	Low Work Stress	1841	57.9	1208	38.0	132	4.1	3181	<.001
	High Work Stress	307	42.4	369	51.0	48	6.6	724	
Family activities stop you getting the amount of sleep you need to do your job well	Low Work Stress	2335	74.1	685	21.7	133	4.2	3153	<.001
	High Work Stress	458	63.5	213	29.5	50	6.9	721	
Family obligations reduce the time you need to relax or be by yourself	Low Work Stress	1664	52.3	1144	36.0	371	11.7	3179	<.001
	High Work Stress	288	39.7	301	41.5	136	18.8	725	

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The next set of questions asked the respondent about how job responsibilities interfered with family life. Respondents were asked to indicate the degree to which they agreed with the following statements:

9.2a) Your job reduces the amount of time you can spend with your family

A significantly greater proportion of the high stress group feel that their job extensively reduced the amount of time they can spend with their family, when compared to the responses of the low stress group. Chi-Square = 203.32, 1 df, $p<.001$

Q9.2b) Problems at work make you irritable at home

There is a significant difference indicating that those in the high stress group are more likely to say that problems at work make them irritable at home.
Chi-Square = 464.16, 1 df, $p<.001$

Q9.2c) Your job involves a lot of travel away from home

There was a significant difference showing that those respondents in the high stress group were more likely to have jobs involving lot of travel away from home.
Chi-Square = 51.67, 1 df, $p<.001$

Q9.2d) Your job takes up so much energy you don't feel up to doing things that need attention at home

A far greater proportion of those in the high stress group indicate that their job takes so much energy that they do not feel up to doing things that need attention at home.
Chi-Square = 421.07, 1 df, $p<.001$

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Family / job interface cont.

		Not at all		To some extent		A great deal		Total	Significance
		N	%	N	%	N	%	N	
Your job reduces the amount of time you can spend with your family	Low Work Stress	1429	45.0	1363	42.9	384	12.1	3176	<.001
	High Work Stress	173	23.7	331	45.3	227	31.1	731	
Problems at home make you irritable at home	Low Work Stress	1485	46.5	1505	47.2	201	6.3	3191	<.001
	High Work Stress	106	14.4	414	56.2	217	29.4	737	
Your job involves a lot of travel away from home	Low Work Stress	2444	80.7	407	13.4	177	5.8	3028	<.001
	High Work Stress	465	68.3	144	21.1	72	10.6	681	
Your job takes up so much energy you don't feel up to doing things that need attention at home you don't feel up to doing things that need attention at home	Low Work Stress	1169	36.6	1628	51.0	397	12.4	3194	<.001
	High Work Stress	76	10.3	354	47.9	309	41.8	739	

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ASSOCIATIONS BETWEEN WORK CHARACTERISTICS AND WORK STRESS AT TIME 2

HOURS OF WORK

The first set of questions (Q6.1) ask generally about the place at which the respondent works.

Q 6.1a) Do you work at night?

There is a significant difference, showing that those with high work stress report working at night at a higher frequency than workers in the low stress group.
Chi-Square = 10.27, 3 df, $p<.05$

Q 6.1b) Do you do shift work?

At Time 2, there is little difference between the work stress groups in the frequency of working in shift patterns. Chi-Square = 0.53, 3 df, $p>.10$

Q 6.1c) Do you have to work long or unsociable hours?

About 30% of highly stressed workers indicate that they often have to work long or unsociable hours, compared to 17% of the low stress group. This difference is significant. Chi-Square = 68.21, 3 df, $p<.001$

Q 6.1d) Do you have unpredictable working hours?

There is a significantly greater likelihood that workers in the high stress group have to work more unpredictable hours compared to workers in the low stress group.
Chi-Square = 50.33, 3 df, $p<.001$

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Table 35
Hours of work by work stress at Time 2

		Often		Sometimes		Seldom		Never / almost never		Total	Significance
		N	%	N	%	N	%	N	%	N	
Do you work at night?	Low Work Stress	156	10.2	172	11.3	108	7.1	1090	71.4	1526	<.05
	High Work Stress	43	13.7	50	15.9	24	7.6	198	62.9	315	
Do you do shift work?	Low Work Stress	171	11.2	47	3.1	33	2.2	1273	83.5	1524	Ns
	High Work Stress	39	12.6	9	2.9	7	2.3	254	82.2	309	
Do you have to work long or unsociable hours?	Low Work Stress	257	16.8	263	17.2	172	11.3	834	54.7	1526	<.001
	High Work Stress	93	29.6	89	28.3	35	11.1	97	30.9	314	
Do you have unpredictable working hours?	Low Work Stress	151	9.9	276	18.1	200	13.1	901	59.0	1528	<.001
	High Work Stress	59	18.8	81	25.9	54	17.3	119	38.0	313	

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PHYSICAL AGENTS AT WORK

Q 6.1e) Does your job ever expose you to breathing fumes, dusts or other potentially harmful substances?

At this time point, there is little difference between the groups in the frequency with which the respondent's job exposes them to breathing fumes, dusts, or other potentially harmful substances. Chi-Square = 0.23, 3 df, $p>.10$

Q6.1f) Does your job require you to handle or touch potentially harmful substances or materials?

There is no significant difference between the work stress groups in the frequency in which the respondent's job requires them to handle or touch potentially harmful substances or materials. Chi-Square = 5.20, 3 df, $p>.10$

Q6.1g) Do you ever have work tasks that leave you with a ringing in your ears or a feeling of temporary deafness?

There is a marginally significant difference indicating that those in the high stress group have work tasks that leave them with a ringing in their ears, or a temporary feeling of deafness more often than those in the low stress group. Chi-Square = 7.35, 3 df, $p=0.06$

Q6.1h) Do you work in an environment where the level of background noise disturbs your concentration?

At this time point, there is a highly significant difference that indicates workers with higher levels of work stress work in an environment where background noise disturbs their concentration more often than low stressed workers. Chi-Square = 45.45, 3 df, $p<.001$

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Table 36
Physical agents at work by work stress at Time 2

		Often		Sometimes		Seldom		Never / almost never		Total	Significance
		N	%	N	%	N	%	N	%	N	
Does your job ever expose you to breathing fumes, dusts or other potentially harmful substances?	Low Work Stress	149	9.7	192	12.5	144	9.4	1048	68.4	1533	Ns
	High Work Stress	31	9.9	38	12.1	32	10.2	213	67.8	314	
Does your job require you to handle or touch potentially harmful substances or materials?	Low Work Stress	91	5.9	184	12.0	161	10.5	1096	71.5	1532	Ns
	High Work Stress	26	8.3	35	11.1	23	7.3	231	73.3	315	
Do you ever have work tasks that leave you with a ringing in your ears or a feeling of temporary deafness?	Low Work Stress	11	0.7	62	4.1	89	5.8	1368	89.4	1530	Ns
	High Work Stress	6	1.9	18	5.8	23	7.3	266	85.0	313	
Do you work in an environment where the level of background noise disturbs your concentration?	Low Work Stress	76	5.0	291	19.0	307	20.1	856	55.9	1530	<.001
	High Work Stress	40	12.7	85	27.0	64	20.3	126	40.0	315	

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CHARACTERISTICS OF JOB

Question 7.1 asks respondents about their work and the sorts of things they have to do.

Q7.1a) Do you have to work very fast?

There is a highly significant difference between the groups, indicating that workers in the high stress group are more likely to have to work very fast than those in the low stress group. Chi-Square = 82.59, 3 df, $p<.001$

Q7.1b) Do you have to work very intensively?

Over two thirds of the respondents in the high stress group have to work very intensively, compared to one third of the workers in the low stress group. This is a highly significant difference. Chi-Square = 114.40, 3 df, $p<.001$

Q7.1c) Do you have enough time to do everything?

At Time 2, almost one third of highly stressed workers indicate that they never or almost never have time to do everything, compared to 10% of the low stress group. This difference is significant. Chi-Square = 170.13, 3 df, $p<.001$

Q7.1d) Are your tasks such that others can help you if you do not have enough time?

There is a significant difference indicting that those in the low stress group feel that others can help them with their work tasks if they do not have enough time, to a greater extent than those in the high stress group. Chi-Square = 41.54, 3 df, $p<.001$

Q7.1e) Do you have the possibility of learning new things through your work?

There is no significant difference between the work stress groups in the frequency in which the respondents report the possibility of learning new things through work. Both groups report these possibilities at a relatively high level. Chi-Square = 1.20, 3 df, $p>.10$

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Q7.1f) Does your work demand a high level of skill or expertise?

The high stress group responses indicate that their work often requires a significantly higher level of skill or expertise than the low work stress group.
Chi-Square = 52.72, 3 df, $p<.001$

Q7.1g) Does your job require you to take the initiative?

A large proportion of workers in the high work stress group (84%) reported that their job often required them to take the initiative. This was significantly different to the proportions reported by the low work stress group (65%), although the rate was relatively high in both groups. Chi-Square = 43.30, 3 df, $p<.001$

Q7.1h) Do you have to do the same thing over and over again?

There is no significant difference between the work stress groups in the frequency with which the respondents report having to do the same thing over and over again at work. Chi-Square = 4.93, 3 df, $p>.10$

Q7.1I) Do you have a choice in deciding how you do your work?

At this time point, there is no significant difference between the work stress groups in the frequency with which the respondents report a choice in deciding how to do their work.
Chi-Square = 4.96, 3 df, $p>.10$

Q 7.1j) Do you have a choice in deciding what you do at work?

There is no significant difference between the work stress groups in the frequency with which the respondents report a choice in deciding what to do at work.
Chi-Square = 0.41, 3 df, $p>.10$

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Table 37
Characteristics of job by work stress at Time 2

		Often		Sometimes		Seldom		Never / almost never		Total	Significance
		N	%	N	%	N	%	N	%	N	
Do you have to work very fast?	Low Work Stress	364	26.1	740	53.0	192	13.8	100	7.2	1396	<.001
	High Work Stress	152	49.8	136	44.6	10	3.3	7	2.3	305	
Do you have to work very intensively?	Low Work Stress	464	32.3	721	50.1	159	11.1	94	6.5	1438	<.001
	High Work Stress	197	63.8	99	32.0	9	2.9	4	1.3	309	
Do you have enough time to do everything?	Low Work Stress	446	30.9	479	33.2	372	25.8	146	10.1	1443	<.001
	High Work Stress	23	7.4	66	21.2	123	39.4	100	32.1	312	
Are your tasks such that others can help you if you do not have enough time?	Low Work Stress	299	21.7	644	46.7	233	16.9	203	14.7	1379	<.001
	High Work Stress	35	11.5	117	38.4	81	26.6	72	23.6	305	
Do you have the possibility of learning new things through your work?	Low Work Stress	581	40.1	615	42.5	160	11.0	92	6.4	1448	Ns
	High Work Stress	129	41.6	135	43.5	29	9.4	17	5.5	310	

(contd)

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Table 37 (contd)

		Often		Sometimes		Seldom		Never / almost never		Total	Significance
		N	%	N	%	N	%	N	%	N	
Does your work demand a high level of skill or expertise?	Low Work Stress	715	48.7	473	32.2	167	11.4	113	7.7	1468	<.001
	High Work Stress	217	69.1	79	25.2	13	4.1	5	1.6	314	
Does you job require you to take the initiative?	Low Work Stress	986	65.2	412	27.2	74	4.9	40	2.6	1512	<.001
	High Work Stress	264	83.8	45	14.3	4	1.3	2	0.6	315	
Do you have to do the same thing over and over again?	Low Work Stress	626	41.9	530	35.5	247	16.5	91	6.1	1494	Ns
	High Work Stress	111	35.5	119	98.0	59	18.8	24	7.7	313	
Do you have a choice in deciding how you do your work?	Low Work Stress	809	54.4	447	30.0	121	8.1	111	7.5	1488	Ns
	High Work Stress	155	49.8	113	36.3	24	7.7	19	6.1	311	
Do you have a choice in deciding what you do at work?	Low Work Stress	364	26.3	492	34.1	295	20.5	290	20.1	1441	Ns
	High Work Stress	78	25.4	100	32.6	67	21.8	62	20.2	307	

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CONTROL AND DECISION LATITUDE

The following set of questions asked respondents how often they agreed with several statements regarding their position at work.

Q8.1a) Others take decisions concerning my work

There is little difference between the two work stress groups with regard to the frequency with which others take decisions about the respondents' work.
Chi-Square = 0.58, 3 df, p>.10

Q8.1b) I have a great deal of say in decisions about my work

At this time point, respondents in both work stress groups reported similar levels of autonomy concerning the amount of say they had in decisions about their work.
Chi-Square = 3.06, 3 df, p>.10

Q8.1c) I have a say in my work speed

Respondents in the low stress group are significantly more likely to report that they often have some influence over their work speed when compared to those in the high work stress group. Chi-Square = 27.13, 3 df, p<.001

Q8.1d) My working time can be flexible

At Time 2, a greater proportion of workers in the low work stress group reported that they often had flexible working times. This was significantly different to the proportions reported by the high work stress group. Chi-Square = 10.79, 3 df, p=.01

Q8.1e) I can decide when to take a break

Workers in the low stress group could decide more often when they could take a break from work than workers with high stress. This was a significant difference.
Chi-Square = 17.23, 3 df, p=.001

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Q8.1f) I can take my holidays more or less when I wish

At this time point, those with high work stress had significantly less freedom in deciding when they could take their holidays than workers with relatively low work stress.
Chi-Square = 56.67, 3 df, $p<.001$

Q8.1g) I have a say in choosing who I work with

There was relatively little difference between the work groups in the degree of say that respondents had in choosing who they worked with. Chi-Square = 3.06, 3 df, $p>.10$

Q8.1h) I have a great deal of say in planning my work environment

At this time point, respondents in both work stress groups reported similar levels of influence in the planning of their work environments. Chi-Square = 3.43, 3 df, $p>.10$

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Table 38
Control and decision latitude by work stress at Time 2

		Often		Sometimes		Seldom		Never / almost never		Total	Significance
		N	%	N	%	N	%	N	%	N	
Others take decisions concerning my work	Low Work Stress	384	26.5	667	46.1	252	17.4	145	10.0	1448	Ns
	High Work Stress	76	24.5	145	46.8	56	18.1	33	10.6	310	
I have a great deal of say in decisions about my work	Low Work Stress	719	48.6	466	31.5	195	13.2	100	6.8	1480	Ns
	High Work Stress	159	50.6	100	31.8	42	13.4	13	4.1	314	
I have a say in my work speed	Low Work Stress	722	51.5	435	31.0	173	12.3	72	5.1	1402	<.001
	High Work Stress	124	41.1	88	29.1	57	18.9	33	10.9	302	
My working time can be flexible	Low Work Stress	499	35.0	437	30.7	195	13.7	293	20.6	1424	.01
	High Work Stress	79	26.3	95	31.7	56	18.7	70	23.3	300	
I can decide when to take a break	Low Work Stress	843	58.5	296	20.5	111	7.7	191	13.3	1441	.001
	High Work Stress	146	47.6	65	21.2	35	11.4	61	19.9	307	
I can take my holidays more or less when I wish	Low Work Stress	888	59.8	347	23.4	108	7.3	141	9.5	1484	<.001
	High Work Stress	131	42.5	69	22.4	44	14.3	64	20.8	308	

(contd)

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Table 38 (contd)

Time 2		Often		Sometimes		Seldom		Never / almost never		Total	Significance
		N	%	N	%	N	%	N	%	N	
I have a say in choosing who I work with	Low Work Stress	187	14.7	276	21.7	299	23.5	511	40.1	1273	Ns
	High Work Stress	33	11.5	64	22.4	62	21.7	127	44.4	286	
I have a great deal of say in planning my work environment	Low Work Stress	342	24.9	361	26.3	290	21.1	379	27.6	1372	Ns
	High Work Stress	66	21.9	71	23.6	74	24.6	90	29.9	301	

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CONSISTENCY AND CLARITY AT WORK

The next set of questions and responses relate to the respondent' perceptions about consistency and clarity of work. Each respondent was asked to indicate how often the following statements applied.

Q8.2a) Do different groups demand things from you that you think are hard to combine?

When compared to the responses of the low stress group, a significantly greater proportion of the high stress group often find that different groups demand things that they think are hard to combine. Chi-Square = 48.99, 3 df, $p<.001$

Q8.2b) Do you get sufficient information from line management (your superiors)?

A significantly smaller proportion of the high stress workers feel that they often get sufficient information from line management, when compared with the low stress group.
Chi-Square = 37.00, 3 df, $p<.001$

Q8.2c) Do you get consistent information from line management (your superiors)?

A significantly smaller proportion of the high stress workers feel that they often get consistent information from line management when compared with the low stress group.
Chi-Square = 50.30, 3 df, $p<.001$

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Table 39
Consistency and clarity at work by work stress at Time 2

		Often		Sometimes		Seldom		Never / almost never		Total	Significance
		N	%	N	%	N	%	N	%	N	
Do different groups demand things from you that you think are hard to combine?	Low Work Stress	175	13.5	546	42.3	328	25.4	243	18.8	1292	<.001
	High Work Stress	110	36.7	144	48.0	29	9.7	17	5.7	300	
Do you get sufficient information from line management (your superiors)?	Low Work Stress	451	33.8	588	44.0	230	17.2	67	5.0	1336	<.001
	High Work Stress	51	17.3	143	48.6	73	24.8	27	9.2	294	
Do you get consistent information from line management (your superiors)?	Low Work Stress	412	30.9	590	44.2	252	18.9	80	6.0	1334	<.001
	High Work Stress	36	12.2	142	48.3	85	28.9	31	10.5	294	

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JOB INVOLVEMENT

The next set of questions and responses are about the respondents' perceptions about their job involvement. Each respondent was asked to indicate how often the following statements applied.

Q8.3a) Does your job provide you with a variety of interesting things to do?

The high stress group reported that their job often provided them with a variety of interesting things to do at a similar level to the low stress group. Chi-Square = 4.50, 3 df, $p>.10$

Q8.3b) Is your job boring?

The high stress group reported that their job was never or almost never boring at a similar level to the low stress group. Chi-Square = 1.61, 3 df, $p>.10$

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Table 40
Job involvement by work stress at Time 2

		Often		Sometimes		Seldom		Never / almost never		Total	Significance
		N	%	N	%	N	%	N	%	N	
Does your job provide you with a variety of interesting things to do?	Low Work Stress	694	46.1	568	37.8	169	11.2	73	4.9	1504	Ns
	High Work Stress	165	52.4	108	34.3	31	9.8	11	3.5	315	
Is your job boring?	Low Work Stress	121	8.1	504	33.6	377	25.1	499	33.2	1501	Ns
	High Work Stress	29	9.3	97	31.0	75	24.0	112	35.8	313	

SUPPORT AT WORK

The following set of questions asked respondents about when they were having difficulties at work. Each respondent was asked to indicate how often the following statements applied.

Q8.4a) How often do you get help and support from colleagues?

A significantly lower proportion of the high stress group reported that they often got help and support from their colleagues when compared with the low stress group.
Chi-Square = 42.47, 3 df, $p<.001$

Q8.4b) How often are your colleagues willing to listen to your work problems?

People in the high work stress group reported that they their colleagues were significantly less willing to listen to work problems, than those in the low stress group.
Chi-Square = 63.05, 3 df, $p<.001$

Q8.4c) How often do you get help and support from your immediate superior?

A significantly lower proportion of the high stress group reported that they often got help and support from their immediate superior, when compared with the low stress group.
Chi-Square = 81.27, 3 df, $p<.001$

Q8.4d) How often is your immediate superior willing to listen to your problems?

People in the high work stress group reported that they their immediate superior was often less willing to listen to work problems, than those in the low stress group.
Chi-Square = 104.46, 3 df, $p<.001$

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Table 41
Support at work by work stress at Time 2

		Often		Sometimes		Seldom		Never / almost never		Total	Significance
		N	%	N	%	N	%	N	%	N	
How often do you get help and support from colleagues?	Low Work Stress	694	48.8	600	42.2	97	6.8	31	2.2	1422	<.001
	High Work Stress	100	32.4	149	48.2	45	14.6	15	4.9	309	
How often are your colleagues willing to listen to your work problems?	Low Work Stress	764	54.2	510	36.2	100	7.1	36	2.6	1410	<.001
	High Work Stress	99	32.9	133	44.2	51	16.9	18	6.0	301	
How often do you get help and support from your immediate superior?	Low Work Stress	517	38.2	585	43.2	185	13.7	67	4.9	1354	<.001
	High Work Stress	48	16.4	130	44.4	78	26.6	37	12.6	293	
How often is your immediate superior willing to listen to your problems?	Low Work Stress	662	49.2	496	36.9	133	9.9	54	4.0	1345	<.001
	High Work Stress	63	21.5	129	44.0	66	22.5	35	11.9	293	

JOB SATISFACTION

The following questions were further general explorations about the respondent's job. They were asked to rate their satisfaction with the following work-related issues. Each respondent was asked to indicate how satisfied they were with the following.

Q8.5a) Your usual take home pay

A greater proportion of the high stress group was very dissatisfied with their usual take home pay when compared with the low stress group. Chi-Square = 34.00, 3 df, $p<.001$

Q8.5b) Your work prospects

A greater proportion of the low stress group was satisfied with their work prospects when compared with the high stress group. This was a significant difference.
Chi-Square = 20.10, 3 df, $p<.001$

Q8.5c) The people you work with

Those in the low stress group were significantly more likely to be satisfied or very satisfied with the people they worked with than those in the high stress group.
Chi-Square = 52.27, 3 df, $p<.001$

Q8.5d) Physical working conditions

A significantly greater proportion of those in the low stress group were either satisfied or very satisfied with their physical working conditions when compared to those in the high stress group. Chi-Square = 43.31, 3 df, $p<.001$

Q8.5e) The way your section is run

Those in the high work stress group were significantly more likely to be dissatisfied with the way their section is run . Chi-Square = 49.62, 3 df, $p<.001$

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Q8.5f) The way your abilities are used

There is a significantly greater level of dissatisfaction with the way in which the respondents' abilities are used in the high stress group compared to the low stress.
Chi-Square = 42.72, 3 df, $p<.001$

Q8.5g) The interest and skill involved in your job

There is no significant difference between the groups in the interest and skill involved in their jobs. Chi-Square = 3.48, 3 df, $p>.10$

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Table 42
Job satisfaction by work stress at Time 2

		Very satisfied		Satisfied		Dissatisfied		Very Dissatisfied		Total	Significance
		N	%	N	%	N	%	N	%	N	
Your usual take home pay	Low Work Stress	166	11.1	932	62.6	337	22.6	55	3.7	1490	<.001
	High Work Stress	38	12.1	164	52.4	76	24.3	35	11.2	313	
Your work prospects	Low Work Stress	116	8.2	879	62.4	327	23.2	87	6.2	1409	<.001
	High Work Stress	28	9.2	152	50.2	88	29.0	35	11.6	303	
The people you work with	Low Work Stress	410	28.2	908	62.4	118	8.1	19	1.3	1455	<.001
	High Work Stress	52	16.9	188	61.2	50	16.3	17	5.5	307	
Physical working conditions	Low Work Stress	241	16.3	983	66.4	224	15.1	32	2.2	1480	<.001
	High Work Stress	38	12.1	170	54.3	89	28.4	16	5.1	313	
The way your section is run	Low Work Stress	169	12.5	877	65.0	246	18.2	57	4.2	1349	<.001
	High Work Stress	18	6.2	152	52.4	91	31.4	29	10.0	290	
The way your abilities are used	Low Work Stress	194	13.3	907	62.1	300	20.5	59	4.0	1460	<.001
	High Work Stress	27	8.8	156	50.6	91	29.5	34	11.0	308	
The interest and skill involved in your job	Low Work Stress	329	22.2	923	62.3	197	13.3	33	2.2	1482	Ns
	High Work Stress	77	24.7	180	57.7	44	14.1	11	3.5	312	

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ATTITUDES TO WORK

The next section contained questions that asked the respondents to agree or disagree with various statements about how they felt about their jobs.

Q8.6a) If a task has to be done well, I'd better take care of it myself

A significantly higher proportion of the high stress group agreed that if a task has to be done well, they had better take care of it themselves. Chi-Square = 18.12, 3 df, $p<.001$

Q8.6b) I can get very upset when someone hinders me in my duties

A significantly higher proportion of the high stress group indicated that they can get very upset when someone hinders them in their duties. Chi-Square = 46.12, 3 df, $p<.001$

Q8.6c) As soon as I get up in the morning I start thinking about work problems

A much larger proportion of the high stress group agreed that as soon as they get up in the morning they start thinking about work problems. This was a highly significant difference. Chi-Square = 213.61, 3 df, $p<.001$

Q8.6d) When I come home, I can easily relax and 'switch off' from work

A far lower proportion of the high stress group indicated that they could successfully 'switch off' and relax when they came home from work.
Chi-Square = 213.90, 3 df, $p<.001$

Q8.6e) People close to me say I sacrifice too much for my job

Those in the high stress group agreed more often with the idea that people close to them said that they sacrificed too much for their job. This was a highly significant difference.
Chi-Square = 135.01, 3 df, $p<.001$

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Q8.6f) For me, family or private life comes first, then work

The respondents in the low stress group were more likely to agree that family or private life came first, before work. Chi-Square = 43.66, 3 df, $p<.001$

Q8.6g) Work rarely lets me go, it is still on my mind when I go to bed

A significantly greater proportion of those in the high stress group agreed that work rarely lets them go, and that it is still on their mind when they go to bed.
Chi-Square = 253.10, 3 df, $p<.001$

Q 8.6h) Every once in a while I like it when others hold me back from working

The respondents in the high stress group were significantly more likely to agree that every once in a while they liked it when others hold them back from working.
Chi-Square = 47.49, 3 df, $p<.001$

Q8.6I) If I postpone something that I was supposed to do today, I will have trouble sleeping at night

Those respondents in the high stress group were far more likely to agree that if they postpone something they are supposed to do today, they will have trouble sleeping at night. Chi-Square = 110.10, 3 df, $p<.001$

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Table 43
Attitudes to work by work stress at Time 2

		Agree		Somewhat agree		Somewhat disagree		Disagree		Total	Significance
		N	%	N	%	N	%	N	%	N	
If a task has to be done well, I'd better take care of it myself	Low Work Stress	613	40.2	644	42.3	197	12.9	69	4.5	1523	<.001
	High Work Stress	164	51.7	120	37.9	27	8.5	6	1.9	317	
I can get very upset when someone hinders me in my duties	Low Work Stress	297	19.5	688	45.3	342	22.5	193	12.7	1520	<.001
	High Work Stress	101	32.1	155	49.2	48	15.2	11	3.5	315	
As soon as I get up in the morning I start thinking about work problems	Low Work Stress	203	13.3	385	25.2	366	24.0	572	37.5	1526	<.001
	High Work Stress	136	43.0	111	35.1	38	12.0	31	9.8	316	
When I come home, I can easily relax and 'switch off' from work	Low Work Stress	644	42.2	486	31.9	294	19.3	101	6.6	1525	<.001
	High Work Stress	32	10.1	83	26.3	119	37.7	82	25.9	316	
People close to me Say I sacrifice myself too much for my job	Low Work Stress	155	10.2	321	21.1	358	23.5	687	45.2	1521	<.001
	High Work Stress	92	29.0	105	33.1	63	19.9	57	18.0	317	

(contd)

Table 43 (contd)

		Agree		Somewhat agree		Somewhat disagree		Disagree		Total	Significance
		N	%	N	%	N	%	N	%	N	
For me, family or private life comes first, then work	Low Work Stress	897	58.9	424	27.9	166	10.9	35	2.3	1522	<.001
	High Work Stress	134	42.5	98	31.1	65	20.6	18	5.7	315	
Work rarely lets me go, it is still on my mind when I go to bed	Low Work Stress	87	5.7	365	23.9	387	25.3	688	45.1	1527	<.001
	High Work Stress	95	30.0	126	39.7	50	15.8	46	14.5	317	
Every once in a while I like it when others hold me back from working	Low Work Stress	226	15.0	475	31.6	332	22.1	472	31.4	1505	<.001
	High Work Stress	77	24.5	126	40.1	67	21.3	44	14.0	314	
If I postpone something that I was supposed to do today, I will have trouble sleeping at night	Low Work Stress	112	7.3	333	21.8	363	23.8	717	47.0	1525	<.001
	High Work Stress	68	21.5	109	34.4	71	22.4	69	21.8	317	

PRESSURES AT WORK

The following questions continue to explore the respondent's feelings about their work. They were asked whether they agreed or disagreed with a series of statements.

Q8.7a) I have constant time pressure due to a heavy workload

Those in the high stress group are significantly more likely to report constant time pressure due to a heavy workload compared to those in the low stress group.
Chi-Square = 153.36, 1 df, $p<.001$

Q8.7b) I have many interruptions and disturbances in my job.

The large majority of respondents in the high stress group report many interruptions and disturbances in their job, and this is significantly different to the level of reporting in the low stress group. Chi-Square = 64.73, 1 df, $p<.001$

Q8.7c) I have a lot of responsibility in my job

Those in the high stress group are significantly more likely to agree that their jobs have a lot of responsibility, although the level of agreement is quite high in both groups.
Chi-Square = 45.04, 1 df, $p<.001$

Q8.7d) I am often under pressure to work overtime

Those in the high stress group report that they are under significantly more pressure to work overtime compared with those in the low stress group. Chi-Square = 99.36, 1 df, $p<.001$

Q8.7e) I have experienced or expect to experience an undesirable change in my work situation

A significantly greater proportion of the respondents in the higher stress group indicate that they have experienced or expect to experience an undesirable change in their work situation than in the low stress group. Chi-Square = 49.05, 1 df, $p<.001$

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Q8.7f) My job promotion prospects are poor

There is little difference between the groups when asked about their prospect for promotion. Chi-Square = 0.39, 1 df, p>.10

Q8.7g) My job security is poor

A greater proportion of workers in the high stress group of workers indicate that they feel their job security is poor compared to those in the low stress group. This difference is marginally significant. Chi-Square = 3.10, 1 df, p=.08

Q8.7h) I am treated unfairly at work

Over one quarter of those in the high stress group feel that they are treated unfairly at work, and this is significantly different to those in the low stress group.
Chi-Square = 104.98, 1 df, p<.001

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Table 44
Pressures at work by work stress at Time 2

		Yes		No		Total	Significance
		N	%	N	%	N	
I have constant time pressure due to a heavy workload	Low Work Stress	720	49.5	736	50.5	1456	<.001
	High Work Stress	271	88.0	37	12.0	308	
I have many interruptions and disturbances in my job	Low Work Stress	972	67.5	469	32.5	1441	<.001
	High Work Stress	278	90.3	30	9.7	308	
I have a lot of responsibility in my job	Low Work Stress	1068	74.7	362	25.3	1430	<.001
	High Work Stress	284	92.2	24	7.8	308	
I am often under pressure to work overtime	Low Work Stress	442	30.3	1016	69.7	1458	<.001
	High Work Stress	186	60.2	123	39.8	309	
I have experienced or expect to experience an undesirable change in my work situation	Low Work Stress	414	28.1	1059	71.9	1473	<.001
	High Work Stress	147	48.7	155	51.3	302	
My job promotion prospects are poor	Low Work Stress	846	57.7	619	42.3	1465	Ns
	High Work Stress	173	55.8	137	44.2	310	
My job security is poor	Low Work Stress	318	21.3	1173	78.7	1491	.08
	High Work Stress	81	25.9	232	74.1	313	
I am treated unfairly at work	Low Work Stress	111	7.4	1380	92.6	1491	<.001
	High Work Stress	85	27.3	226	72.7	311	

Q8 8a) Considering all my efforts and achievements, my work prospects are adequate

When considering efforts and achievements at work, a significantly lower proportion of the high stress group feel that their work prospects are adequate.
Chi-Square = 10.55, 1 df, p=.001

Q8.8b) I receive the respect I deserve from my superiors and colleagues

A significantly lower proportion of the high stress group feel that they receive the respect they deserve from their superiors and colleagues when compared to the responses of the low stress group. Chi-Square = 56.01, 1 df, p<.001

Q8.8c) I experience adequate support in difficult situations

Those in the high stress group are significantly less likely to agree that experience adequate support in difficult situations. Chi-Square = 124.58, 1 df, p<.001

Q8.8d) Considering all my efforts and achievements, I receive the respect and prestige I deserve, at work

Those in the high stress group are significantly less likely to agree that they receive the respect and prestige they deserve considering all their efforts and achievements at work.
Chi-Square = 46.92, 1 df, p<.001

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Table 45
Support at work by work stress at Time 2

		Yes		No		Total	Significance
		N	%	N	%	N	
Considering all my efforts and achievements, my work prospects are adequate	Low Work Stress	1111	75.0	371	25.0	1482	<.001
	High Work Stress	206	66.0	106	34.0	312	
I receive the respect I deserve from my superiors and colleagues	Low Work Stress	1215	81.8	271	18.2	1486	<.001
	High Work Stress	196	62.6	117	37.4	313	
I experience adequate support in difficult situations	Low Work Stress	1183	79.5	305	20.5	1148	<.001
	High Work Stress	152	49.0	158	51.0	310	
Considering all my efforts and achievements, I receive the respect and prestige I deserve at work	Low Work Stress	1097	73.7	391	26.3	1488	<.001
	High Work Stress	168	54.2	142	45.8	310	

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RACIAL ABUSE, SEXUAL HARASSMENT AND BULLYING

The next set of questions explored whether the respondents had been affected emotionally or physically by the issues of racial abuse, sexual harassment, and bullying at work.

Q8.9a) Racial abuse at work

There was little difference showing that those respondents in the high stress group were equally as likely as those in the low work stress group to be affected by racial abuse at work. It is worth noting that the levels of responding overall were low, and there are low numbers of ethnic minority respondents in this survey. Chi-Square = 2.59, 1 df, $p>.10$

Q8.9b) Sexual harassment

There was little difference showing that those respondents in the high stress group equally as likely as those in the low work stress group to be affected by sexual harassment at work. Chi-Square = 2.44, 1 df, $p>.10$

Q8.9c) Bullying at work

There was a significantly greater proportion of respondents in the high stress group agreeing that they had been physically or emotionally affected by bullying at work at Time 2. Chi-Square = 33.69, 1 df, $p<.001$

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Table 46
Racial abuse, sexual harassment and bullying by work stress at Time 2

		Yes		No		Total	Significance
		N	%	N	%	N	
Racial abuse at work	Low Work Stress	38	2.5	1477	97.5	1515	Ns
	High Work Stress	13	4.2	300	95.8	313	
Sexual harassment	Low Work Stress	58	3.8	1457	96.2	1515	Ns
	High Work Stress	18	5.8	294	94.2	312	
Bullying at work	Low Work Stress	110	7.3	1402	92.7	1512	<.001
	High Work Stress	55	17.6	257	82.4	312	

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JOB SECURITY

Q8 10) Are you worried about losing your job?

There was a significant difference showing that those respondents in the high stress group were more likely to be worried about losing their job. Chi-Square = 54.49, 4 df, $p<.001$

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Table 47
Job security by work stress at Time 2

		Not at all worried		Mildly worried		Moderately worried		Very worried		Extremely worried		Total	Significance
		N	%	N	%	N	%	N	%	N	%	N	
Are you worried about losing your job?	Low Work Stress	952	62.6	389	25.6	135	8.9	27	1.8	17	1.1	1520	<.001
	High Work Stress	156	49.5	81	25.7	43	13.7	21	6.7	14	4.4	315	

FAMILY / WORK INTERFACE

The next set of questions asked the respondent about how family life and family responsibilities interfered with job performance. Respondents were asked to indicate the degree to which they agreed with the following statements:

Q9.1a) Family matters reduce the time you can devote to your job

There was a significant difference showing that those respondents in the high stress group were more likely to agree that family matters reduced the time they could devote to their job. Chi-Square = 11.60, 2 df, $p<.005$

Q9.1b) Family worries or problems distract you from your work

Those respondents in the high stress group were significantly more likely to agree that family worries or problems distracted them from their work to some extent.
Chi-Square = 34.87, 2 df, $p<.001$

Q9.1c) Family activities stop you getting the amount of sleep you need to do your job well

Family activities stopped a significantly greater proportion of high work-stressed respondents getting the amount of sleep needed to do their job well. Chi-Square = 18.80, 2 df, $p<.001$

Q9.1d) Family obligations reduce the time you need to relax or be by yourself

A significantly greater proportion of the high stress group feel that family obligations reduced the time they needed to relax or be by themselves, when compared to the responses of the low stress group. Chi-Square = 17.47, 2 df, $p<.001$

Table 48
Family / work interface by work stress at Time 2

Time 2		Not at all		To some extent		A great deal		Total	Significance
		N	%	N	%	N	%	N	
Family matters reduce the time you can devote to your job	Low Work Stress	980	66.8	407	27.7	80	5.5	1467	<.005
	High Work Stress	172	56.6	111	36.5	21	6.9	304	
Family worries or problems distract you from your work	Low Work Stress	878	59.4	561	37.9	40	2.7	1479	<.001
	High Work Stress	137	44.3	148	47.9	24	7.8	309	
Family activities stop you getting the amount of sleep you need to do your job well	Low Work Stress	1082	73.5	339	23.0	51	3.5	1472	<.001
	High Work Stress	192	62.7	91	29.7	23	7.5	306	
Family obligations reduce the time you need to relax or be by yourself	Low Work Stress	731	49.3	546	36.8	205	13.8	1482	<.001
	High Work Stress	117	38.1	124	40.4	66	21.5	307	

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The next set of questions asked the respondent about how job responsibilities interfered with family life. Respondents were asked to indicate the degree to which they agreed with the following statements:

Q9.2a) Your job reduces the amount of time you can spend with your family

A significantly greater proportion of the high stress group feel that their job extensively reduces the amount of time they can spend with their family, when compared to the responses of the low stress group. Chi-Square = 90.51, 2 df, $p<.001$

Q9.2b) Problems at work make you irritable at home

There is a significant difference indicating that those in the high stress group are more likely to say that problems at work make them irritable at home. Chi-Square = 251.64, 2 df, $p<.001$

Q9.2c) Your job involves a lot of travel away from home

There was a significant difference showing that those respondents in the high stress group were more likely to have jobs involving a lot of travel away from home.
Chi-Square = 13.57, 2 df, $p=.001$

Q9.2d) Your job takes up so much energy you don't feel up to doing things that need attention at home

A far greater proportion of those in the high stress group reported that their job takes so much energy that they do not feel up to doing things that need attention at home.
Chi-Square = 165.91, 2 df, $p<.001$

Table 49
Job responsibilities and family life by work stress at Time 2

Time 2		Not at all		To some extent		A great deal		Total	Significance
		N	%	N	%	N	%	N	
Your job reduces the amount of time you can spend with your family	Low Work Stress	646	43.6	660	44.6	175	11.8	1481	<.001
	High Work Stress	64	20.8	151	49.2	92	30.0	307	
Problems at home make you irritable at home	Low Work Stress	713	48.1	697	47.0	72	4.9	1482	<.001
	High Work Stress	38	12.3	181	58.6	90	29.1	309	
Your job involves a lot of travel away from home	Low Work Stress	1148	80.9	207	14.6	64	4.5	1419	.001
	High Work Stress	209	71.6	60	20.5	23	7.9	292	
Your job takes up so much energy you don't feel up to doing things that need attention at home	Low Work Stress	539	36.0	789	52.7	170	11.3	1498	<.001
	High Work Stress	32	10.3	162	52.1	117	37.6	311	

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IS THERE A SIGNIFICANT DIFFERENCE BETWEEN ASSOCIATIONS WITH PERCEIVED WORK STRESS FOR THOSE WITH VARYING WORK CHARACTERISTICS IN THEIR JOBS?

This section examines the associations between various characteristics of respondents' jobs and their workplaces and their perceptions of work-related stress at both time points, and also examines how these relationships may change over time.

As well as looking at cross-sectional data for the working sample, in order to understand the relationship between work characteristics and perceived work stress, it is worthwhile looking at the data using a longitudinal framework to see how they may change over time. One way of looking at this data is to measure the degree of association between work characteristics reported at Time 1, and subsequent symptoms reported at Time 2. We have screened out participants who have changed jobs or job role over the intervening year, so we proceeded with the assumption that work characteristics remain largely unchanged for these respondents from Time 1 to Time 2. This method is known as cross-lagged analysis. If the relationship between the work characteristic and the level of work stress is transient, we would not expect any significant associations to drop out when using this method of analysis. However, if the association between work characteristics and perceived work stress is robust, we would expect to find that the association continues to be significant.

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HOURS OF WORK

The tables below present the analyses for the associations between work characteristics and perceived work stress for both time points, and for the cross-lagged analysis of Time 2 work stress by Time 1 work characteristics.

Table 50

Type of work characteristic	Significant association with high work stress?		
Q6.1 Working hours	*Time 1*	*Time 2*	*T1 WC with T2 WS*
Do you work at night?	Yes	Yes	Yes
Do you do shift work?	Yes	No	No
Do you have to work long or unsociable hours?	Yes	Yes	Yes
Do you have unpredictable working hours?	Yes	Yes	Yes

WC = work characteristics WS = work stress

Physical agents at work

Table 51

Type of work characteristic	Significant association with high work stress?		
Q6.1 Exposure to physical agents	Time 1	Time 2	*T1 WC with T2 WS*
Does your job ever expose you to breathing fumes, dusts or other potentially harmful substances?	Yes	No	No
Does your job require you to handle or touch potentially harmful substances or materials?	No	No	No
Do you ever have work tasks that leave you with a ringing in your ears or a feeling of temporary deafness?	Yes	Yes	No
Do you work in an environment where the level of background noise disturbs your concentration?	Yes	Yes	Yes

WC = work characteristics WS = work stress

Although we see fairly global associations between characteristics of the workplace and perceived work stress at Time 1, and to a similar extent at Time 2, the longitudinal analysis leaves a lesser set of robust associations. Night working, working long or unsociable or predictable hours at Time 1 are all associated with higher perceived work stress at Time 2. In addition, working in an environment where the level of background noise disturbs

concentration is also significantly associated with perceived work stress one year after initial measurement of the workplace characteristic.

CHARACTERISTICS OF JOB

Table 52

Type of work characteristic **Q7.1 About your work and the sorts of things you have to do**	**Significant association with high work stress?**		
	Time 1	*Time 2*	*T1 WC with T2 WS*
Do you have to work very fast?	Yes	Yes	Yes
Do you have to work very intensively?	Yes	Yes	Yes
Do you have enough time to do everything?	Yes	Yes	Yes
Are your tasks such that others can help you if you do not have enough time?	Yes	Yes	Yes
Do you have the possibility of learning new things through work?	No	No	No
Does your work demand a high level of skill or expertise?	Yes	Yes	Yes
Does your job require you to take the initiative?	Yes	Yes	Yes
Do you have to do the same thing over and over again?	Yes	No	No
Do you have a choice in deciding how you do your work?	No	No	No
Do you have a choice in deciding what you do at work?	No	No	No

WC = work characteristics WS = work stress

In this section on the sorts of things that participants do at work, it is clear that an identical pattern of results emerge at both time points, and also in the longitudinal analysis. Having to work fast and work intensively has an effect on perceptions of work stress. Feeling that one does not have time to do everything, and that the task at hand is one that others cannot help with if one does not have enough time both contribute to higher perceptions of work stress. Furthermore, work that requires a high level of skill or expertise, or requires the respondent to take the initiative is also associated with higher levels of reported work stress.

Interestingly, neither choice on deciding how or what is done at work is associated with work stress levels. Indeed, even if work is repetitive or does not afford the opportunity to learn new things, these factors are not significantly associated with reported levels of work stress.

Table 53

Type of work characteristic	Significant association with high work stress?		
Q8.1 About your position at work	*Time 1*	*Time 2*	*T1 WC with T2 WS*
Others take decisions concerning my work	No	No	No
I have a great deal of say in decisions about my work	No	No	No
I have a say in my work speed	Yes	Yes	Yes
My working time can be flexible	Yes	Yes	Yes
I can decide when to take a break	Yes	Yes	Yes
I can take my holidays more or less when I wish	Yes	Yes	Yes
I have a say in choosing who I work with	No	No	No
I have a great deal of say in planning my work environment	No	No	No

WC = work characteristics WS = work stress

The data about the respondents position at work reveals very little difference in the pattern of associations according to the time frame in which the analysis occurs. There is little association between the level of work stress and the control that respondent or others have about the work that is done. Additionally, work stress is not associated with degree of influence that the respondent has over their general work environment or in choosing who they work with. However, leaving these parameters of decisions about work aside, what is clear is that there are significant associations between level of work stress and decisions regarding autonomy in managing the work that is being done. Work stress is significantly associated with work speed, working time flexibility, deciding when to take a break, and being able to take holidays more or less when one wishes.

CONSISTENCY AND CLARITY AT WORK

Table 54

Type of work characteristic	**Significant association with high work stress?**		
Q8.2 About consistency and clarity at work	*Time 1*	*Time 2*	*T1 WC with T2 WS*
Do different groups demand things from you that you think are hard to combine?	Yes	Yes	Yes
Do you get sufficient information from line management (your superiors)?	Yes	Yes	Yes
Do you get consistent information from line management (your superiors)?	Yes	Yes	Yes

WC = work characteristics WS = work stress

Lack of consistency and clarity of information from different groups or line management are significantly related to higher levels of work stress at both time points and in the longitudinal analyses. In addition, the more that different groups demand things that are hard to combine, the more likely it is that the respondent will also have relatively high levels of work stress.

JOB INVOLVEMENT

Table 55

Type of work characteristic	**Significant association with high work stress?**		
Q8.3 About your job involvement	*Time 1*	*Time 2*	*T1 WC with T2 WS*
Does your job provide you with a variety of interesting things to do?	Yes	No	Yes
Is your job boring?	Yes	No	No

WC = work characteristics WS = work stress

The association between work characteristics concerning job involvement and perceived work stress depends upon the time point at which the association is measured. At Time 1, a variety of interesting things to do and a relative lack of boredom were associated with relatively low frequency of cases of work stress. Both these effects drop out at Time 2. However, in the longitudinal analysis, it is clear that having a variety of interesting things to do in one's job as measured at Time 1 is associated with relatively low levels of work stress at Time 2.

SUPPORT AT WORK

Table 56

Type of work characteristic	Significant association with high work stress?		
Q8.4 Support at work	*Time 1*	*Time 2*	*T1 WC with T2 WS*
How often do you get help and support from your colleagues?	Yes	Yes	Yes
How often are your colleagues willing to listen to your work problems?	Yes	Yes	Yes
How often do you get help and support from your immediate superior?	Yes	Yes	Yes
How often is your immediate superior willing to listen to your problems?	Yes	Yes	Yes

WC = work characteristics WS = work stress

It is clear from the table above that having colleagues and immediate superiors who are willing to listen to one's work problems and offer support is associated with significantly lower levels of perceived work stress. These associations are apparent at both time points and also in the longitudinal analyses.

JOB SATISFACTION

Table 57

Type of work characteristic	Significant association with high work stress?		
Q8.5 Job satisfaction	*Time 1*	*Time 2*	*T1 WC with T2 WS*
Your usual take home pay	Yes	Yes	Yes
Your work prospects	Yes	Yes	Yes
The people you work with	Yes	Yes	Yes
Physical working conditions	Yes	Yes	Yes
The way your section is run	Yes	Yes	Yes
The way your abilities are used	Yes	Yes	Yes
The interest and skill involved in your job	No	No	No

WC = work characteristics WS = work stress

Once again, a clear pattern of finding emerges about the associations between characteristics of the respondents' jobs in general and perceived work stress. Satisfaction with usual take home pay, work prospects, the people one works with, physical working conditions, the way one's section is run and the way one's abilities are used are all significantly associated with perceived work stress in the expected direction. These findings hold across time points and longitudinal examination. Furthermore, the interest and skill involved in one's job are not associated with work stress at all.

ATTITUDES TO WORK

Table 58

Type of work characteristic	**Significant association with high work stress?**		
Q8.6 How you feel about your work	*Time 1*	*Time 2*	*T1 WC with T2 WS*
If a task has to be done well, I'd better take care of it myself	Yes	Yes	Yes
I can get very upset when someone hinders me in my duties	Yes	Yes	Yes
As soon as I get up in the morning I start thinking about work problems	Yes	Yes	Yes
When I come home, I can easily relax and 'switch off' from work	Yes	Yes	Yes
People close to me say I sacrifice myself too much for my job	Yes	Yes	Yes
For me, family or private life comes first, then work	Yes	Yes	Yes
Work rarely lets me go, it is still on my mind when I go to bed	Yes	Yes	Yes
Every once in a while I like it when others hold me back from working	Yes	Yes	Yes
If I postpone something that I was supposed to do today, I will have trouble sleeping at night	Yes	Yes	Yes

WC = work characteristics WS = work stress

The table above indicates global associations between these work characteristics encompassing feelings about one's job and perceived work stress. The findings indicate that those people who are 'job-oriented' in their approach seem to be more likely to perceive significantly higher levels of job stress in their working lives, and that this finding is robust.

PRESSURES AT WORK

Table 59

Type of work characteristic	**Significant association with high work stress?**		
Q8.7 Pressures at work	*Time 1*	*Time 2*	*T1 WC with T2 WS*
I have constant time pressure due to a heavy workload	Yes	Yes	Yes
I have many interruptions and disturbances in my job	Yes	Yes	Yes
I have a lot of responsibility in my job	Yes	Yes	Yes
I am often under pressure to work overtime	Yes	Yes	Yes
I have experienced or expect to experience an undesirable change in my work situation	Yes	Yes	Yes
My job promotion prospects are poor	No	No	No
My job security is poor	Yes	No	No
I am treated unfairly at work	Yes	Yes	Yes

WC = work characteristics WS = work stress

There is a coherent pattern of results showing that those respondents who feel they are under pressure because of constant time pressure due to heavy workload, or are pressured to work overtime, or have lots of responsibility in their jobs, or have interruptions in their jobs, or perceive that they are treated unfairly at work, are significantly more likely to experience higher levels of work stress.

The results indicate that those who have experienced or who are about to experience an undesirable change in their work situation are more likely to perceive greater levels of work stress. However, poor job promotion prospects and job security are not associated with job stress.

Table 60

Type of work characteristic	Significant association with high work stress?		
Q8.8 Do you agree with these statements about your work?	*Time 1*	*Time 2*	*T1 WC with T2 WS*
Considering all my efforts and achievements, my work prospects are adequate	Yes	Yes	Yes
I receive the respect I deserve from my superiors and colleagues	Yes	Yes	Yes
I experience adequate support in difficult situations	Yes	Yes	Yes
Considering all my efforts and achievements, I receive the respect and prestige I deserve at work	Yes	Yes	Yes

WC = work characteristics WS = work stress

There is a consistent pattern of results indicating that adequate prestige, status, respect, support and work prospects are all significantly associated with lower levels of work stress, across all methods of analyses

RACIAL ABUSE, SEXUAL HARASSMENT AND BULLYING

Table 61

Type of work characteristic	**Significant association with high work stress?**		
Q8.9 Have you been affected physically or emotionally by the following?	*Time 1*	*Time 2*	*T1 WC with T2 WS*
Racial abuse at work	Yes	No	No
Sexual harassment at work	Yes	No	No
Bullying at work	Yes	Yes	Yes

WC = work characteristics WS = work stress

Although there are significant effects for racial abuse and sexual harassment and their association with higher levels of work stress for at least one time point, this finding is unreliable given the low numbers of participants in some of the response categories. Furthermore, there is a low number of respondents who describe their ethnic origin as other than white.

What is noticeable is that bullying at work seems to be consistently and significantly associated with higher reports of work stress across all time points.

JOB SECURITY

Table 62

	Significant association with high work stress?		
Q 8.10 Job security	*Time 1*	*Time 2*	*T1 WC with T2 WS*
Are you worried about losing your job?	Yes	Yes	Yes

WC = work characteristics WS = work stress

At all time points, being worried about losing one's job is significantly associated with higher reports of occupational stress.

FAMILY / WORK INTERFACE

Table 63

Type of work characteristic	**Significant association with high work stress?**		
Q9.1 How work and family life affect each other	*Time 1*	*Time 2*	*T1 WC with T2 WS*
Family matters reduce the time you can devote to your job	Yes	Yes	No
Family activities stop you getting the amount of sleep you need to do your job well	Yes	Yes	Yes
Family obligations reduce the time you need to relax or be by yourself	Yes	Yes	Yes
Your job reduced the amount of time you can spend with your family	Yes	Yes	Yes

WC = work characteristics WS = work stress

For most of the items detailed above, there is a pattern indicating that family matters reduce the amount of sleep or time that the respondent can relax, and that these factors are reflected in higher work stress. When looking at the longitudinal analyses, an interesting effect is uncovered.

Job stress is more strongly associated with the impact of the job upon one's family life and is more important in determining job stress over time than the way in which one's family life interferes with the time one can devote to work.

Table 64

Type of work characteristic	Significant association with high work stress?		
Q9.2 To what extent do your job responsibilities interfere with your family life?	*Time 1*	*Time 2*	*T1 WC with T2 WS*
Problems at work make you irritable at home	Yes	Yes	Yes
Your job involves a lot of travel away from home	Yes	Yes	Yes
Your job takes so much energy you don't feel up to doing things that need attention at home	Yes	Yes	Yes

WC = work characteristics WS = work stress

It is clear that job responsibilities interfere with family life in a variety of ways across all time points, and that these factors are all significantly associated with higher levels of work stress.

ASSOCIATIONS BETWEEN HEALTH STATUS AND PERCEIVED WORK STRESS AT TIME 1

The first set of questions asked the respondents whether they had ever been told by the doctor that they have, or have had any of the following health problems. The respondent were asked to answer 'yes' or 'no' for each illness presented.

Table 65
Long term health problems by work stress

Time 1		Yes		Total	Statistical Significance Ns=not significant
		N	%		
Angina	Low Work Stress	33	1.1	3115	Ns
	High Work Stress	9	1.3	705	
High Cholesterol	Low Work Stress	191	6.1	3129	Ns
	High Work Stress	44	6.2	705	
Diabetes	Low Work Stress	47	1.5	3115	Ns
	High Work Stress	14	2.0	703	
Stroke	Low Work Stress	12	.4	3103	Ns
	High Work Stress	3	.4	702	
Heart Attack	Low Work Stress	32	1.0	3109	Ns
	High Work Stress	6	.9	702	
High Blood Pressure	Low Work Stress	429	13.5	3171	p<.001
	High Work Stress	137	19.0	721	
Nervous Trouble / Depression	Low Work Stress	586	18.6	3159	<.001
	High Work Stress	185	25.6	722	
Asthma	Low Work Stress	367	11.7	3138	Ns
	High Work Stress	96	13.5	711	
Emphysema	Low Work Stress	11	.4	3096	Ns
	High Work Stress	4	.6	702	
Bronchitis	Low Work Stress	382	12.2	3128	.004
	High Work Stress	116	16.2	717	
Breast Cancer	Low Work Stress	13	.4	3100	.006
	High Work Stress	9	1.3	699	
Other Cancer	Low Work Stress	72	2.3	3097	Ns
	High Work Stress	16	2.3	700	

Q1.4a) Angina

There was a generally low level of angina across both work groups, with little difference between them. Chi-square 0.25, 1 df, p> .10

Q1.4b) High cholesterol level

High cholesterol was reported by just over 6% of respondents in both work stress groups. Chi-square 0.02, 1 df, p>0.10

Q1.4c) Diabetes

There was a generally low level of diabetes across both work groups, with little difference between them. Chi-square 0.85, 1 df, p>.10

Q1.4d) Stroke

There was little reporting of stroke across both work groups.
Chi-square 0.02, 1 df, p=>.10

Q1.4e) Heart attack (coronary thrombosis, myocardial infarction)

The rate of heart attacks as diagnosed by a doctor was low across both stress groups, with little difference between them. Chi-square 0.18, 1 df, p>.10

Q1.4f) High blood pressure

A greater proportion of workers in the high stress group indicated that they had been told by a doctor that they had high blood pressure compared to the low stress workers. This is a significant difference. Chi-square 14.16, 1 df, p<.001

Q1 4g) Nervous trouble or depression

Around 26% of respondents in the high stress group report that a doctor has told them that they are or were suffering from nervous trouble / depression. This was a significantly greater proportion when compared with the low stress group (19%). Chi-square 18.47, 1 df, p<.001

Q1.4h) Asthma

There was little difference in the incidence of asthma across work stress groups. Chi-square 1.79, 1 df, p>.10

Q1.4i) Emphysema

The rate of emphysema as diagnosed by a doctor was low across both stress groups, with little difference between them. Chi-square 0.67, 1 df, p>.10

Q1.4j) Bronchitis

There was significant difference between the work stress groups with respect to reported incidence of bronchitis. A greater proportion of the high stress group (16%) had been diagnosed, as compared to the low stress group (12%). Chi-square 8.14, 1 df, p<.005

Q1.4k) Breast cancer

There was a significantly higher incidence of breast cancer diagnosis reported in the high stress group. The finding held after excluding males from the analysis.
Chi-square 7.47, 1 df, p=.006

Q1.4l) Other cancer

There was little difference between the groups with respect to reports of diagnosed cancer (other than breast cancer). Chi-square 0.004, 1 df, p.10

The next set of health related questions asked the respondents about recurring problems that they may have had over the last 12 months. The respondents were asked to answer 'yes' or 'no' for each illness presented.

Table 66

Health problems over the last 12 months by work stress

		Yes		Total	Significance
		N	%		
Bronchitis	Low Work Stress	178	5.7	3146	Ns
	High Work Stress	53	7.4	713	
Arthritis / Rheumatism	Low Work Stress	382	12.2	3139	0.04
	High Work Stress	107	15.1	709	
Sciatica, Lumbago / recurring backache	Low Work Stress	955	30.1	3172	<.001
	High Work Stress	285	39.4	724	
Persistent skin trouble	Low Work Stress	575	18.3	3139	Ns
	High Work Stress	148	20.9	708	
Asthma	Low Work Stress	278	8.8	3144	Ns
	High Work Stress	77	10.8	710	
Hay Fever	Low Work Stress	541	17.3	3129	0.02
	High Work Stress	148	21.0	705	
Recurring stomach trouble /Indigestion	Low Work Stress	720	22.8	3153	<.001
	High Work Stress	249	34.8	716	
Being constipated	Low Work Stress	167	5.3	3123	<.001
	High Work Stress	66	9.4	700	
Piles	Low Work Stress	450	14.4	3135	<.001
	High Work Stress	151	21.3	708	
Persistent Foot Trouble	Low Work Stress	329	10.5	3129	0.03
	High Work Stress	94	13.3	708	
Trouble with Varicose veins	Low Work Stress	120	3.8	3117	Ns
	High Work Stress	38	5.4	699	
Nervous Trouble or persistent Depression	Low Work Stress	291	9.3	3136	<.001
	High Work Stress	149	21.1	705	
Persistent trouble with Gums / Mouth	Low Work Stress	277	8.8	3138	<.001
	High Work Stress	115	16.3	706	
Any other recurring Health problem	Low Work Stress	467	16.3	2868	<.001
	High Work Stress	168	26.4	636	

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Q1 6a) Bronchitis

There was a marginally significant difference between the work groups, showing that those in the high stress group were slightly more likely to have had bronchitis in the last 12 months than those in the low stress group. Chi-square 3.26, 1 df, p=0.07

Q1.6b) Arthritis or rheumatism

There was a significant difference between the work groups, showing that those in the high stress group were more likely to have had arthritis/rheumatism in the last 12 months than those in the low stress group. Chi-square 4.45, 1 df, p=0.05

Q1.6c) Sciatica, lumbago or recurring backache

Those in the high stress group were significantly more likely to report sciatica, lumbago or recurring backache over the last 12 months compared to those in the low stress group. Chi-square 23.28, 1 df, p<.001

Q1.6d) Persistent skin trouble (e.g. eczema)

There was little difference between the groups in incidence of persistent skin trouble over the last 12 months. Chi-square 2.53, 1 df, p>.10

Q1.6e) Asthma

There was a marginally significant difference between the work groups, showing that those in the high stress group were slightly more likely to have had asthma in the last 12 months than those in the low stress group. Chi-square 2.78, 1 df, p>.10

Q1.6f) Hay fever

There was a significant difference between the work stress groups with respect to reported hay fever over the last 12 months. A greater proportion of the high stress group (21%) had been diagnosed, as compared to the low stress group (16%). Chi-square 5.35, 1 df, p=0.05

Q1.6g) Recurring stomach trouble or indigestion

A greater proportion of workers in the high stress group indicated that they had recurring stomach trouble or indigestion compared to the low stress workers. This is a significant difference. Chi-square 44.32, 1 df, p<.001

Q1.6h) Being constipated all or most of the time

There is a significantly greater likelihood that those in the high stress group have had recurring or chronic bouts of constipation over the last 12 months compared to respondents in the low stress group. Chi-square 16.64, 1 df, p<.001

Q1.6i) Piles

There is a significantly higher rate of reporting of piles in the high stress group over the last 12 months compared to respondents in the low stress group. Chi-square 21.29, 1 df, p<.001

Q1.6j) Persistent foot trouble (e.g. bunions, ingrowing toenails)

Those in the high stress group are significantly more likely to report persistent foot trouble than those in the low stress group. Chi-square 4.49, 1 df, p=0.05

Q1.6k) Trouble with varicose veins

There was a marginally significant difference between the work groups, showing that those in the high stress group were slightly more likely to have had trouble with varicose veins in the last 12 months than those in the low stress group. Chi-square 3.62, 1 df, p=0.05

Q1.6l) Nervous trouble or persistent depression

There is a significantly greater likelihood that those in the high stress group have had recurring nervous trouble or depression over the last 12 months compared to respondents in the low stress group. Chi-square 79.76, 1 df, p<.001

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Q1 6m) Persistent trouble with your gums or mouth

Those in the high stress group are significantly more likely to report persistent trouble with their gums or more generally with their mouths than those in the low stress group. Chi-square 35.04, 1 df, p<.001

Q1.6n) Any other recurring health problem

There is a significantly higher rate of other recurring health problems in the high stress group over the last 12 months compared to respondents in the low stress group. Chi-square 36.02, 1 df, p<.001

The next set of questions asked respondents about their intake of medicines prescribed by their doctor over the last 14 days. The respondents were asked to answer 'yes' or 'no' for each category of medication presented. The respondents were asked to exclude any contraceptive pills that they were taking.

Table 67

Prescribed medication over last 14 days by work stress

		Yes		Total	Significance
		N	%		
Painkillers	Low Work Stress	625	19.7	3178	<.001
	High Work Stress	186	25.9	718	
Medicines for Indigestion	Low Work Stress	204	6.5	3129	.009
	High Work Stress	66	9.3	710	
Blood Pressure tablets	Low Work Stress	146	4.7	3134	Ns
	High Work Stress	34	4.8	707	
Sleeping pills	Low Work Stress	49	1.6	3114	<.001
	High Work Stress	28	4.0	703	
Antidepressants	Low Work Stress	61	2.0	3119	<.001
	High Work Stress	37	5.3	704	
Laxatives	Low Work Stress	60	1.9	3111	.05
	High Work Stress	22	3.1	701	
Any other medicines prescribed by a doctor	Low Work Stress	597	20.2	2960	.05
	High Work Stress	160	23.6	677	

Q1.7a) Painkillers

Those in the high stress group are significantly more likely to take prescribed painkillers than those in the low stress group. Chi-square 13.83, 1 df, p<.001

Q1.7b) Medicines for indigestion

Those in the high stress group were significantly more likely to take medicine for indigestion over the last 14 days compared to those in the low stress group. Chi-square 6.82, 1 df, p=.009

Q1.7c) Blood pressure tablets

There was little difference in the rate at which respondents took blood pressure tablets across work stress groups. Chi-square 0.03, 1 df, p>.10

Q1.7d) Sleeping pills

A greater proportion of workers in the high stress group indicated that they had taken sleeping tablets over the last 14 days compared to the low stress workers. This is a significant difference, although the general level rate is low. Chi-square 16.84, 1 df, p<.001

Q1.7e) Antidepressants

Those in the high stress group were significantly more likely to take antidepressants over the last 14 days compared to those in the low stress group.
Chi-square 25.04, 1 df, p<.001

Q1.7f) Laxatives (bowel opening medicine)

Those in the high stress group were significantly more likely to take laxatives over the last 14 days compared to those in the low stress group, although the overall rate of reporting is low. Chi-square 3.98, 1 df, p=0.05

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Q1 7g) Other medicines prescribed by a doctor

Those in the high stress group were significantly more likely to take other medicines prescribed by a doctor over the last 14 days compared to those in the low stress group.
Chi-square 4.01, 1 df, p=0.05

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The next set of health questions were about more acute illnesses. They asked the respondents whether they had experienced any of the following symptoms over the last 14 days. The respondent were asked to answer 'yes' or 'no' for each illness presented.

Table 68

Symptoms over last 14 days by work stress

		Yes		Total	Significance
		N	%		
Cough, Catarrh or Phlegm	Low Work Stress	1244	38.8	3207	<.001
	High Work Stress	341	46.6	731	
Diarrhoea	Low Work Stress	297	9.4	3149	<.001
	High Work Stress	118	16.5	716	
Heartburn, Wind or Indigestion	Low Work Stress	952	30.1	3166	<.001
	High Work Stress	292	40.4	723	
Shortness of Breath	Low Work Stress	424	13.4	3170	.001
	High Work Stress	133	18.3	726	
Dizziness or Giddiness	Low Work Stress	341	10.8	3152	<.001
	High Work Stress	127	17.8	715	
Earache / Discomfort in Ears	Low Work Stress	382	12.1	3168	.001
	High Work Stress	118	16.5	715	
Swollen Ankles	Low Work Stress	147	4.7	3148	<.001
	High Work Stress	61	8.5	715	
Nervy, tense or depressed	Low Work Stress	779	24.7	3156	<.001
	High Work Stress	361	50.1	721	
A cold or flu	Low Work Stress	826	26.1	3165	Ns
	High Work Stress	198	27.6	717	
A sore throat	Low Work Stress	808	25.5	3168	.02
	High Work Stress	213	29.7	717	
Difficulty Sleeping	Low Work Stress	1089	34.1	3191	<.001
	High Work Stress	387	52.9	732	
Pains in the Chest	Low Work Stress	204	6.5	3152	<.001
	High Work Stress	91	12.7	716	
Backache or pains in the back	Low Work Stress	1042	32.7	3191	<.001
	High Work Stress	307	41.9	733	

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Table 68 (contd)

		Yes		Total	Significance
		N	%		
Nausea or vomiting	Low Work Stress	168	5.3	3141	<0001
	High Work Stress	65	9.1	717	
Feeling tired for no apparent reason	Low Work Stress	1003	31.6	3177	<.001
	High Work Stress	373	51.0	731	
Rashes, itches or other skin trouble	Low Work Stress	653	20.7	3153	.03
	High Work Stress	174	24.4	714	
Blocked or Runny Nose	Low Work Stress	1006	31.8	3166	Ns
	High Work Stress	246	34.5	714	
Headache	Low Work Stress	1539	48.3	3188	<.001
	High Work Stress	436	59.9	728	
Wheeziness	Low Work Stress	301	9.5	3161	.004
	High Work Stress	94	13.1	715	
Toothache or trouble with gums	Low Work Stress	328	10.4	3156	<.001
	High Work Stress	94	13.1	715	
Any other complaints in the last 14 days?	Low Work Stress	131	4.3	3019	.03
	High Work Stress	43	6.3	678	

Q1.8a) A cough, catarrh, or phlegm

There was a significantly higher incidence of coughs, catarrh or phlegm reported in the high stress group. Chi-square 15.29, 1 df, p<.001

Q1.8b) Diarrhoea

Those in the high stress group were significantly more likely to report experiencing diarrhoea over the last 14 days compared to the respondents in the low stress group.
Chi-square 30.24, 1 df, p<.001

Q1.8c) Heartburn, wind or indigestion

Those in the high stress group were significantly more likely to report experiencing heartburn, wind or indigestion over the last 14 days compared to those in the low stress group.
Chi-square 28.80, 1 df, p<.001

Q1.8d) Shortness of breath

A significantly greater proportion of workers in the high stress group indicated that they had experienced shortness of breath over the last 14 days compared to the low stress workers. Chi-square 11.79, 1 df, p=.001

Q1.8e) Dizziness or giddiness

A significantly greater proportion of respondents in the high stress group report experiencing dizziness or giddiness over the last 14 days compared to the low stress workers. Chi-square 26.42, 1 df, p<.001

Q1.8f) Earache or discomfort in the ears

Those in the high stress group were significantly more likely to report earache or discomfort in the ears over the last 14 days compared to those in the low stress group. Chi-square 10.28, 1 df, p=.001

Q1.8g) Swollen ankles

Those in the high stress group are significantly more likely to report swollen ankles over the last 14 days than those in the low stress group. Chi-square 17.06, 1 df, p<.001

Q1.8h) Nervy, tense or depressed

Around half of the respondents of the high stress group report feeling nervy, tense or depressed over the last 14 days compared with around a quarter of those in the low stress group. This is a highly significant difference. Chi-square 182.22, 1 df, p<.001

Q1.8i) A cold or flu

There was little difference between stress groups in the rate at which respondents experienced cold or flu over the last 14 days. Chi-square 0.69, 1 df, p>.10

Q1 8j) A sore throat

Those in the high stress group were significantly more likely to report a sore throat over the last 14 days compared to those in the low stress group. Chi-square 5.33, 1 df, p=.02

Q1.8k) Difficulty sleeping

A significantly greater proportion of respondents in the high stress group report experiencing difficulty sleeping over the last 14 days compared to the low stress workers.
Chi-square 89.12, 1 df, p<.001

Q1.8l) Pains in the chest

Those in the high stress group were significantly more likely to report pains in the chest over the last 14 days compared to those in the low stress group.
Chi-square 32.22, 1 df, p<.001

Q1.8m) Backache or pains in the back

There is a significantly greater likelihood that those in the high stress group have had pains in the back or backache over the last 14 days compared to respondents in the low stress group.
Chi-square 22.50, 1 df, p<.001

Q1.8n) Nausea or vomiting

Those in the high stress group were significantly more likely to report nausea or vomiting over the last 14 days compared to those in the low stress group.
Chi-square 14.21, 1 df, p<.001

Q1.8o) Feeling tired for no apparent reason

A significantly greater proportion of respondents in the high stress group report feeling tired for no apparent reason over the last 14 days compared to the low stress workers.
Chi-square 98.60, 1 df, p<.001

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Q1.8p) Rashes, itches, or other skin trouble

Those in the high stress group were significantly more likely to report rashes, itches or other skin trouble over the last 14 days compared to those in the low stress group.
Chi-square 4.64, 1 df, p=.03

Q1.8q) Blocked or runny nose

There was little difference between stress groups in the rate at which respondents experienced a blocked or runny nose over the last 14 days. Chi-square 1.91, 1 df, p>.10

Q1.8r) Headache

A headache was a significantly greater problem for respondents in the high stress group over the last 14 days compared to the low stress workers. Chi-square 31.99, 1 df, p<.001

Q1.8s) Wheeziness

Those in the high stress group were significantly more likely to report wheeziness over the last 14 days compared to those in the low stress group. Chi-square 8.37, 1 df, p=.004

Q1.8t) Toothache or trouble with gums

Those in the high stress group were significantly more likely to report toothache or trouble with gums over the last 14 days compared to those in the low stress group.
Chi-square 23.96, 1 df, p<.001

Q1.8u) Any other complaints in the last 14 days?

A significantly greater proportion of respondents in the high stress group report experiencing other health complaints not listed over the last 14 days compared to the low stress workers. Chi-square 4.95, 1 df, p=.03

Overall, respondents in the high stress group report experiencing a greater number of symptoms in total over the last 14 days compared with those in the low stress group (see Table 69).

The next set of results depict rates of anxiety, depression and general psychopathology in the sample at Time 1, as measured by the Hospital Anxiety and Depression Scale [17] (HAD) and the General Health Questionnaire [18] (GHQ).

In summary, respondents in the high stress group were significantly more anxious, more depressed, and reported greater levels of general distress than those in the low stress group.

Table 69

Health questionnaire mean scores by work stress

Work Stress		HAD Anxiety	HAD Depression	GHQ	14 Day Symptom Score
Low Work Stress	Mean	6.44	3.47	2.14	4.16
	N	3222	3170	3234	3284
	Std. Deviation	3.77	2.96	3.07	3.15
High Work Stress	Mean	9.22	5.17	4.32	5.74
	N	728	716	738	749
	Std. Deviation	4.04	3.41	3.86	3.32
Total	Mean	6.95	3.78	2.55	4.45
	N	3950	3886	3972	4033
	Std. Deviation	3.97	3.11	3.34	3.24
Sig. (2-tailed)	p	<.001	<.001	<.001	<.001

ASSOCIATIONS BETWEEN HEALTH STATUS AND PERCEIVED WORK STRESS AT TIME 2

The first set of questions asked the respondents whether they had ever been told by the doctor that they have, or have had any of the following health problems. The respondents were asked to answer 'yes' or 'no' for each illness presented.

Table 70

Long term health problems by work stress

Time 2		Yes N	Yes %	Total	Significance
Angina	Low Work Stress	25	1.7	1507	Ns
	High Work Stress	6	2.0	299	
High Cholesterol	Low Work Stress	101	6.7	1508	Ns
	High Work Stress	24	7.9	302	
Diabetes	Low Work Stress	22	1.5	1503	.009
	High Work Stress	11	3.7	298	
Stroke	Low Work Stress	8	0.5	1494	Ns
	High Work Stress	0	0	297	
Heart Attack	Low Work Stress	15	1.0	1501	Ns
	High Work Stress	4	1.4	296	
High Blood Pressure	Low Work Stress	227	14.9	1522	.006
	High Work Stress	65	21.2	306	
Nervous Trouble / Depression	Low Work Stress	277	18.3	1513	.000
	High Work Stress	86	28.0	307	
Asthma	Low Work Stress	192	12.7	1513	Ns
	High Work Stress	49	16.2	302	
Emphysema	Low Work Stress	5	.3	1494	Ns
	High Work Stress	2	.7	297	
Bronchitis	Low Work Stress	183	12.2	1503	Ns
	High Work Stress	43	14.3	300	
Breast Cancer	Low Work Stress	5	.3	1494	.015
	High Work Stress	5	1.7	298	
Other Cancer	Low Work Stress	44	2.9	1501	Ns
	High Work Stress	10	3.4	296	

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Q1 4a) Angina

As at Time 1, there was a generally low level of angina across both work stress groups, with little difference between them. Chi-square=0.18, 1df, p>.10

Q1.4b) High cholesterol level

High cholesterol was endorsed by about 7% of respondents in both work stress groups. There was no significant difference in reporting rates between these groups.
Chi-square=0.61, 1df, p>.10

Q1.4c) Diabetes

The high stress group had significantly more diabetics. Chi-square=6.86, 1df, p=.009

Q1.4d) Stroke

The reporting of stroke at Time 2 was very low. There was no significant difference between the groups. Chi-square=1.60, 1df, p>.10

Q1.4e) Heart attack (coronary thrombosis, myocardial infarction)

There was no significant difference between the groups. Chi-square=0.29, 1df, p>.10

Q1.4f) High blood pressure

There was a significant difference between the groups, indicating that a greater proportion of the respondents in the high stress group have been diagnosed with high blood pressure.
Chi-square=7.60, 1df, p=.006

Q1.4g) Nervous trouble or depression

Responses indicate that a significantly greater proportion of the high stress group have been told by a doctor that they have or have had nervous trouble or depression than the low stress group. Chi-square=15.01, 1df, p<.001

Q1.4h) Asthma

There was no difference between the group with regard to reported asthma.
Chi-square=2.73, 1df, p=.10

Q1.4i) Emphysema

Overall, reported emphysema was very low, and there was no significant difference between the two work stress groups. Chi-square=0.73, 1df, p>.10

Q1.4j) Bronchitis

For this timepoint, there was no difference between the groups in reports of bronchitis.
Chi-square=1.06, 1df, p>.10

Q1.4k) Breast cancer

Breast cancer at Time 2 was extremely low, but there was a significant difference between the stress groups. All those that did report breast cancer at this time point were female. Chi-square=8.08, 1df, p=.004

Q1.4l) Other cancer

For other types of cancer, there was no difference between the stress groups at this time point.
Chi-square=0.170, 1df, p>.10

The next set of health related questions asked the respondents about recurring problems that they may have had over the last 12 months. The respondent were asked to answer 'yes' or 'no' for each illness presented.

Table 71
Health problems over the last 12 months by work stress

		Yes		Total	Significance
		N	%		
Bronchitis	Low Work Stress	68	4.5	1510	.004
	High Work Stress	26	8.4	308	
Arthritis / Rheumatism	Low Work Stress	179	11.9	1510	.000
	High Work Stress	64	20.5	312	
Sciatica, Lumbago / Recurring backache	Low Work Stress	463	30.6	1511	.006
	High Work Stress	120	38.7	310	
Persistent skin trouble	Low Work Stress	279	18.4	1513	.033
	High Work Stress	73	23.7	308	
Asthma	Low Work Stress	130	8.6	1512	Ns
	High Work Stress	35	11.4	306	
Hay Fever	Low Work Stress	248	16.4	1510	Ns
	High Work Stress	62	20.2	307	
Recurring stomach trouble /Indigestion	Low Work Stress	331	21.7	1526	.000
	High Work Stress	107	34.2	313	
Being constipated	Low Work Stress	86	5.7	1505	Ns
	High Work Stress	26	8.4	308	
Piles	Low Work Stress	244	16.2	1508	.036
	High Work Stress	66	21.1	313	
Persistent Foot Trouble	Low Work Stress	170	11.3	1511	Ns
	High Work Stress	40	13.0	308	
Trouble with Varicose Veins	Low Work Stress	60	4.0	1502	Ns
	High Work Stress	10	3.3	305	
Nervous Trouble or Persistent Depression	Low Work Stress	152	10.0	1515	.000
	High Work Stress	62	20.3	306	
Persistent trouble with Gums / Mouth	Low Work Stress	121	8.0	1507	.033
	High Work Stress	36	11.8	305	
Any other recurring Health problem	Low Work Stress	177	13.1	1353	.04
	High Work Stress	46	17.9	257	

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Q1.6a) Bronchitis

There was a significant difference between the groups, with the high stress group reporting more bronchitis. Chi-square=8.09, 1df, p=.004

Q1.6b) Arthritis or rheumatism

The high stress group reported more arthritis or rheumatism than the low stress group. Chi-square=16.77, 1df, p<.001

Q1.6c) Sciatica, lumbago or recurring backache

There was a greater level of reporting of sciatica, lumbago or recurring backache in the high stress group compared to respondents in the low stress group at time 2, and this difference was significant. Chi-square=7.69, 1df, p=.006

Q1.6d) Persistent skin trouble (e.g. eczema)

A greater proportion of respondents in the high stress group reported having persistent skin trouble over the last 12 months, and this difference from the low stress group was significant. Chi-square=4.54, 1df, p=.033

Q1.6e) Asthma

There was no significant difference in the level of reporting of asthma over the last 12 months between the work stress groups. Chi-square=2.49, 1df, p>.10

Q1.6f) Hay fever

There was no significant difference in the level of reporting of hay fever over the last 12 months between the work stress groups. Chi-square=2.57, 1df, p>.10

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Q1 6g) Recurring stomach trouble or indigestion

Around 34% of respondents in the high stress group report experiencing recurring stomach trouble or indigestion over the last 12 months. This was a significantly greater proportion than the low stress group (22%). Chi-square=22.3, 1df, p<.001

Q1.6h) Being constipated all or most of the time

There was no significant difference between the groups. Chi-square=3.29, 1df, p=.070

Q1.6i) Piles

At this time point, there was a significantly higher reporting of piles in the high stress group over the last 12 months compared to respondents in the low stress group.
Chi-square=4.42, 1df, p=.036

Q1.6j) Persistent foot trouble (e.g. bunions, ingrowing toenails)

There was little difference between the groups in persistent foot trouble over the last 12 months. Chi-square=0.76, 1df, p>.10

Q1.6k) Trouble with varicose veins

There was little difference between the groups, with both groups reporting trouble with varicose veins over the last 12 months at about 4%. Chi-square=0.35, 1df, p>.10

Q1.6l) Nervous trouble or persistent depression

There was a significantly greater likelihood that those in the high stress group have had recurring nervous trouble or depression over the last 12 months compared to respondents in the low stress group. Chi-square=25.68, 1df, p<.001

Q1.6m) Persistent trouble with your gums or mouth

There was a significant difference between the work groups, showing that those in the high stress group were more likely to have had persistent trouble with their gums or their mouths in general over the last 12 months than those in the low stress group.
Chi-square=4.57, 1df, p=.033

Q1.6f) Any other recurring health problem

There was a significantly higher rate of reporting of other recurring health problems in the high stress group over the last 12 months compared to respondents in the low stress group. Chi-square=4.20, 1df, p=.040

The next set of questions asked respondents about their intake of medicines prescribed by their doctor over the last 14 days. The respondent were asked to answer 'yes' or 'no' for each category of medication presented. The respondents were asked to exclude any contraceptive pills that they were taking.

Table 72
Prescribed medication over past 14 days by work stress

		Yes		Total	Significance
		N	%		
Painkillers	Low Work Stress	308	20.2	1214	.005
	High Work Stress	86	27.5	227	
Medicines for Indigestion	Low Work Stress	102	6.8	1499	
	High Work Stress	28	9.0	312	Ns
Blood Pressure tablets	Low Work Stress	82	5.5	1503	Ns
	High Work Stress	19	6.1	313	
Sleeping pills	Low Work Stress	24	1.6	1463	.009
	High Work Stress	12	3.9	296	
Antidepressants	Low Work Stress	57	3.8	1435	.041
	High Work Stress	20	6.4	293	
Laxatives	Low Work Stress	31	2.1	1450	Ns
	High Work Stress	10	3.3	296	
Any other medicines prescribed by a doctor	Low Work Stress	272	19.6	1387	Ns
	High Work Stress	57	20.7	275	

Q1 7a) Painkillers

A significantly greater proportion of workers in the high stress group (28%) indicated that they had taken prescribed painkillers over the last 14 days compared to the low stress workers (20%). Chi-square=8.07, 1df, p=.005

Q1.7b) Medicines for indigestion

There was no significant difference in the rate at which respondents took medicines for indigestion across work stress groups. Chi-square=1.83, 1df, p>.10

Q1.7c) Blood pressure tablets

There was little difference in the rate at which respondents took blood pressure tablets across work stress groups. Chi-square=0.19, 1df, p>.10

Q1.7d) Sleeping pills

There was a significant difference between the groups, with the high stress group being twice as likely to take sleeping pills over the last 14 days. Chi-square=6.76, 1df, p=.009

Q1.7e) Antidepressants

Those in the high stress group were significantly more likely to take antidepressants over the last 14 days compared to those in the low stress group. Chi-square=4.18, 1df, p=.041

Q1.7f) Laxatives (bowel opening medicine)

There was little difference in the rate at which respondents took laxatives across work stress groups. Chi-square=1.56, 1df, p>.10

Q1.7g) Other medicines prescribed by a doctor

There was little difference between the groups, with both groups taking prescribed medication other than those already described at a rate of between 19 - 21%.
Chi-square=0.18, 1df, p>.10

The next set of health questions were about more acute illnesses. They asked the respondents whether they had experienced any of the following symptoms over the last 14 days. The respondents were asked to answer 'yes' or 'no' for each illness presented.

Table 73

Symptoms over last 14 days by work stress

		Yes		Total	Significance
		N	%		
Cough, Catarrh or Phlegm	Low Work Stress	552	35.9	1539	Ns
	High Work Stress	127	40.1	317	
Diarrhoea	Low Work Stress	175	11.5	1521	.01
	High Work Stress	52	16.8	310	
Heartburn, Wind or Indigestion	Low Work Stress	449	29.3	1534	.000
	High Work Stress	131	41.3	317	
Shortness of Breath	Low Work Stress	168	11.0	1532	.000
	High Work Stress	66	21.2	312	
Dizziness or Giddiness	Low Work Stress	174	11.4	1527	.000
	High Work Stress	67	21.6	310	
Earache / Discomfort in Ears	Low Work Stress	158	10.4	1523	.000
	High Work Stress	55	17.9	308	
Swollen Ankles	Low Work Stress	76	5.0	1520	.000
	High Work Stress	34	11.1	306	
Nervy, tense or depressed	Low Work Stress	383	25.1	1528	.000
	High Work Stress	163	52.2	312	
A cold or flu	Low Work Stress	346	22.6	1532	Ns
	High Work Stress	74	23.9	309	
A sore throat	Low Work Stress	385	25.2	1529	Ns
	High Work Stress	91	29.4	309	
Difficulty Sleeping	Low Work Stress	515	33.5	1536	.000
	High Work Stress	164	51.9	316	
Pains in the Chest	Low Work Stress	76	5.0	1514	.000
	High Work Stress	34	11.0	310	
Backache or pains in the back	Low Work Stress	487	31.8	1531	.002
	High Work Stress	128	40.8	314	
Nausea or Vomiting	Low Work Stress	90	5.9	1520	Ns
	High Work Stress	26	8.5	306	

Table 73 (contd)

		Yes N	Yes %	Total	Significance
Feeling tired for no apparent reason	Low Work Stress	436	28.3	1538	.000
	High Work Stress	147	47.3	311	
Rashes, itches or other skin trouble	Low Work Stress	316	20.7	1528	.029
	High Work Stress	81	26.3	308	
Blocked or Runny Nose	Low Work Stress	486	31.7	1533	Ns
	High Work Stress	96	30.8	312	
Headache	Low Work Stress	760	49.6	1532	.000
	High Work Stress	192	61.1	314	
Wheeziness	Low Work Stress	99	6.5	1520	.000
	High Work Stress	38	12.3	310	
Toothache or trouble with gums	Low Work Stress	160	10.5	1522	.004
	High Work Stress	50	16.2	308	
Any other complaints in the last 14 days?	Low Work Stress	73	5.0	1461	Ns
	High Work Stress	22	7.7	285	

Q1.8a) A cough, catarrh, or phlegm

At this time point, there was no significant difference between the groups. Chi-square=1.99, 1df, p>.1

Q1.8b) Diarrhoea

Around 17% of respondents in the high stress group report diarrhoea over the last 14 days. This was a significantly greater proportion when compared with the low stress group (12%). Chi-square=6.58, 1df, p=.01

Q1.8c) Heartburn, wind or indigestion

A significantly greater proportion of workers in the high stress group (41%) indicated that they had experienced heartburn, wind or indigestion over the last 14 days compared to the low stress workers (29%). Chi-square=17.74, 1df, p<.001

Q1 8d) Shortness of breath

At this time point, there was a significantly higher reporting of shortness of breath over the last 14 days by the high stress group. Chi-square=24.28, 1df, p<.001

Q1.8e) Dizziness or giddiness

There was a significantly greater likelihood that those in the high stress group experienced bouts of dizziness or giddiness over the last 14 days compared to respondents in the low stress group. Chi-square=23.60, 1df, p<.001

Q1.8f) Earache or discomfort in the ears

There was a significant difference between the work groups, showing that those in the high stress group were more likely to have earache or discomfort in their ears over the 14 days than those in the low stress group. Chi-square=13.96, 1df, p<.001

Q1.8g) Swollen ankles

There was a significantly higher reporting of swollen ankles over the last 14 days by the high stress group compared to those respondents in the low stress group.
Chi-square=16.80, 1df, p<.001

Q1.8h) Nervy, tense or depressed

Around 52% of the respondents of the high stress group report feeling nervy, tense or depressed over the last 14 days compared with around 25% of those in the low stress group. This was a highly significant difference. Chi-square=91.71, 1df, p<.001

Q1.8i) A cold or flu

At this time point, there was little difference between the groups, with around 22 - 23% of the respondents in each group experiencing cold or flu over the last 14 days.
Chi-square=0.27, 1df, p>.10

Q1.8j) A sore throat

There was no significant difference between the groups for reporting of sore throats. Chi-square=2.44, 1df, p>.1

Q1.8k) Difficulty sleeping

A significantly greater proportion of workers in the high stress group (52%) indicated that they had difficulty sleeping over the last 14 days compared to the low stress workers (33%). Chi-square=38.09, 1df, p<.001

Q1.8l) Pains in the chest

There was a significant difference between the groups, with the high stress group reporting pains in the chest more often. Chi-square=16.06, 1df, p<.001

Q1.8m) Backache or pains in the back

There was a greater level of reporting of backache or pain in the back in the high stress group compared to respondents in the low stress group at time 2 (41% v 32%), and this difference was significant. Chi-square=9.40, 1df, p=.002

Q1.8n) Nausea or vomiting

There was no significant difference between the groups for this symptom. Chi-square=2.84, 1df, p=.092

Q1.8o) Feeling tired for no apparent reason

Around 48% of the respondents of the high stress group reported feeling tired for no apparent reason over the last 14 days compared with around 20% of those in the low stress group. This was a highly significant difference. Chi-square=42.89, 1df, p<.001

Q1 8p) Rashes, itches, or other skin trouble

Those in the high stress group were significantly more likely to have had rashes, itches or other skin trouble over the last 14 days compared to those in the low stress group.
Chi-square=4.77, 1df, p=.029

Q1.8q) Blocked or runny nose

There was no significant difference between the work groups for these symptoms.
Chi-square=0.11, 1df, p>.10

Q1.8r) Headache

Around 61% of the respondents in the high stress group reported having had a headache over the last 14 days compared with around 50% of those in the low stress group. This was a highly significant difference. Chi-square=13.89, 1df, p<.001

Q1.8s) Wheeziness

There was a significant difference between the groups, with wheeziness being greater in the high stress group. Chi-square=12.27, 1df, p<.001

Q1.8t) Toothache or trouble with gums

At Time 2, those in the high stress group were significantly more likely to report toothache or trouble with gums over the last 14 days compared to those in the low stress group.
Chi-square=8.25, 1df, p<.004

Q1.8u) Any other complaints in the last 14 days?

There was no significant difference between stress groups in the rate at which respondents experienced other health complaints not listed above over the last 14 days.
Chi-square=3.44, 1df, p=.064

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Overall at Time 2, respondents in the high stress group report experiencing a greater number of symptoms in total over the last 14 days compared with those in the low stress group (see Table 74).

The next set of results depict anxiety, depression and general psychopathology in the sample at Time 2, as measured by the HAD and the GHQ.

In summary, at Time 2 respondents in the high stress group were significantly more anxious, more depressed, and reported greater levels of general distress than those in the low stress group.

Table 74
Health questionnaire mean scores by work stress

Work Stress		HAD Anxiety	HAD Depression	GHQ	14 Day Symptom Score
Low Work Stress	Mean	6.2	5.75	2.06	3.91
	N	1569	1572	1566	1396
	Std. Deviation	3.69	2.34	3.03	2.94
High Work Stress	Mean	9.41	7.20	4.13	5.49
	N	318	325	316	268
	Std. Deviation	3.94	2.67	3.62	3.06
Sig. (2-tailed)	p	<.001	<.001	<.001	<.001

CROSS SECTIONAL AND CROSS-LAGGED ASSOCIATIONS BETWEEN PERCEIVED STRESS AND HEALTH

This section examines the associations between levels of work stress and reported symptoms at both time points, and also examines how these relationships may change over time.

As well as looking at cross-sectional data for the working sample, in order to understand the relationship between work stress and health, it is worthwhile looking at the data using a longitudinal framework to see how the relationship between work stress and symptoms may change over time. One way of looking at this data is to measure the degree of association between work stress reported at Time 1, and subsequent symptoms reported at Time 2. This method is known as cross-lagged analysis. If the relationship between the health symptom and the level of work stress is transient, we would expect any significant associations to drop out when using this method of analysis. However, if the association between work stress and symptoms is robust, we would expect to find that the association continues to be significant.

The tables below present the analyses for the associations between work stress and symptoms for both time points, and for the cross-lagged analysis of Time 2 health by Time 1 level of work stress.

Table 75

Complaint	**Significant association with high work stress?**		
	Time 1	*Time 2*	*T2 H with T1 WS*
12 month health	Yes	Yes	Yes
Life stress	Yes	Yes	Yes

H=health WS= work stress

The finding that those respondents with high levels of work stress are also more likely to report poor general health over the last 12 months, and higher levels of general life stress outside work is robust over both time points. Moreover, the finding holds in the cross-lagged analyses which is a more stringent test of the association over time.

Table 76

Ever been told by a doctor that you have:	Significant association with high work stress?		
	Time 1	*Time 2*	*T2 H with T1 WS*
Angina	No	No	No
High cholesterol	No	No	No
Diabetes	No	Yes	No
Stroke	No	No	No
Heart attack	No	No	No
High blood pressure	Yes	Yes	No
Nervous trouble / depression	Yes	Yes	Yes
Asthma	No	No	Yes
Emphysema	No	No	No
Bronchitis	Yes	No	Yes
Breast cancer (all workers)	Yes	No	No
Breast cancer (women)	Yes	Yes	No
Other cancer	No	No	No

H=health WS= work stress

The most robust finding is that those who have relatively high levels of work stress are also more likely to have been told by their doctor at some point that they have been suffering with nervous trouble or depression. This finding held across all three types of analyses.

The significant associations between work stress and high blood pressure, diabetes, bronchitis and breast cancer at either time point are not reproduced in the longitudinal analyses, indicating that these findings are not robust and may be subject to other outside influences.

Table 77

Suffered from in the last 12 months:	Significant association with high work stress?		
	Time 1	*Time 2*	*T2 H with T1 WS*
Bronchitis	No	Yes	No
Arthritis / rheumatism	Yes	Yes	No
Sciatica, lumbago, recurring backache	Yes	Yes	Yes
Persistent skin trouble	No	Yes	No
Asthma	No	No	No
Hay fever	Yes	No	No
Recurring stomach trouble / indigestion	Yes	Yes	Yes
Being constipated	Yes	No	Yes
Piles	Yes	Yes	Yes
Persistent foot trouble	Yes	No	No
Trouble with varicose veins	No	No	No
Nervous trouble / persistent depression	Yes	Yes	Yes
Persistent trouble with gums / mouth	Yes	Yes	Yes
Other recurring health problem	Yes	Yes	Yes

H=health WS= work stress

At Time 1, the number of responses to most of the health symptom categories in the last 12 months were directly associated with the level of work stress of the respondents. Indeed, a similar pattern of results was obtained at Time 2.

However, the longitudinal analyses revealed that the more robust associations between chronic health symptoms over the last 12 months and work stress focused upon complaints involving the gastro-intestinal system (recurring stomach trouble / indigestion, piles, persistent trouble with gums / mouth), those involving pain in the spinal musculo-skeletal system (sciatica, lumbago, recurring backache), and various other recurring health problems.

Table 78

Taken in the last 14 days prescribed by a doctor:	Significant association with high work stress? *Time 1*	*Time 2*	*T2 H with T1 WS*
Painkillers	Yes	Yes	No
Medicines for indigestion	Yes	No	No
Blood pressure tablets	No	No	No
Sleeping pills	Yes	Yes	No
Antidepressants	Yes	Yes	Yes
Laxatives	Yes	No	No
Other medicines prescribed by a doctor	Yes	No	No

H=health WS= work stress

Time 1 analyses revealed an almost global association between relatively high levels of work stress and the ingestion of various classes of prescribed medication over the last 14 days. At time 2, the associations were limited to a higher frequency of taking painkillers, sleeping pills and antidepressants if respondents described themselves as high in work stress.

The more robust longitudinal analyses revealed that a significantly greater proportion of those high in work stress at Time 1 were taking prescribed antidepressants at Time 2.

Table 79

Any of the following in the last 14 days:	Significant association with high work stress? *Time 1*	*Time 2*	*T2 H with T1 WS*
Cough, catarrh, or phlegm	Yes	No	No
Diarrhoea	Yes	Yes	Yes
Heartburn, wind, indigestion	Yes	Yes	Yes
Shortness of breath	Yes	Yes	Yes
Dizziness or giddiness	Yes	Yes	Yes
Earache or discomfort	Yes	Yes	Yes
Swollen ankles	Yes	Yes	Yes
Nervy, tense or depressed	Yes	Yes	Yes
Cold or flu	No	No	No
Sore throat	Yes	No	No
Difficulty sleeping	Yes	Yes	Yes
Pains in the chest	Yes	Yes	Yes
Backache or pains in the back	Yes	Yes	Yes
Nausea / vomiting	Yes	No	Yes
Feeling tired for no apparent reason	Yes	Yes	Yes
Rashes, itches / other skin trouble	Yes	Yes	Yes
Blocked or runny nose	No	No	Yes
Headache	Yes	Yes	Yes
Wheeziness	Yes	Yes	No
Toothache or trouble with gums	Yes	Yes	Yes
Any other complaint in last 14 days	Yes	No	No

H=health WS= work stress

At both Time 1 and Time 2, an almost global pattern of associations between high levels of work stress and increased level of symptom reports for the last 14 days is found. There is little difference between these two time points.

The cross-lagged associations show that the associations between high levels of work stress and acute symptom reports can be organised around several themes. The first is a theme of gastro-intestinal complaints (diarrhoea, heartburn, wind, and indigestion, nausea / vomiting, toothache or trouble with gums). The second is a one of fatigue, tension and anxiety (nervy, tense or depressed, headache, difficulty sleeping, feeling tired for no apparent reason, shortness of breath, dizziness or giddiness). A third theme could be considered to be a general category of pain (backache or pains in the back, pains in the chest, and earache or discomfort). Lastly, there is a group of symptoms that do not seem to fall into a natural group, but are nevertheless

associated with high levels of work stress across time; rashes, itches / other skin trouble, a blocked or runny nose, and swollen ankles.

Table 80

Health Scale	Significant association with high work stress? *Time 1*	*Time 2*	*T2 H with T1 WS*
HAD anxiety	Yes	Yes	Yes
HAD depression	Yes	Yes	Yes
GHQ	Yes	Yes	Yes
14 day symptom score	Yes	Yes	Yes

H=health WS= work stress

There are strong associations between high work stress and relatively high reports of anxiety and depressive symptoms as measured by the HADS, general psychopathology as measured by the GHQ, and the total number of acute physical symptoms over the last 14 days, at both time points. These findings remain robust in the longitudinal analyses.

ASSOCIATIONS BETWEEN WORK STRESS AND HEALTH STATUS FOR THOSE THAT DO NOT HAVE HIGH LEVELS OF GENERAL LIFE STRESS

These analyses enable us to ascertain what level of association is found when those with high general life stress are excluded from the investigation of the link between work stress and health. It is hoped that this method enables us to establish a better idea of the impact of work stress alone (apart from life stress) upon health.

This section reports the associations between work stress and chronic symptoms (have you ever been told by a doctor that you have had a particular illness and symptom reports over last 12 months), acute symptoms (symptoms over the last 14 days), prescribed medication, and scores on the GHQ and HADS scales (measuring general psychopathology and anxiety and depression).

At each separate time point, only those respondents that were in a paid job and answered the questions for that time point alone were included in the analyses. For the change analyses, respondents were categorised on the basis of their Time 1 work stress scores, and only those who were employed at both time points were included in the analyses.

ASSOCIATIONS BETWEEN HEALTH STATUS AND PERCEIVED WORK STRESS AT TIME 1, EXCLUDING THOSE WITH HIGH LIFE STRESS

One of the primary aims of this research was to investigate the degree to which work stress alone is associated with health status. One way of looking at this issue was to look at the associations between those with low and high work stress and their health status, after eliminating those respondents with high life stress. In this way, we are able to see how those with high work stress (and thus low general life stress) differ in their health status from those workers with both low work and general life stress.

Summary of findings

Is there a significant difference in health status between those with low and high work stress?

Comparing original Time 1 analyses with analyses excluding those with high general life stress there is still a difference in the level of reporting of general health over the last 12 months once we have excluded those respondents with high levels of general life stress.

Table 81

Complaint	Time 1	Time 1 excluding high life stress
12 month health	Yes	Yes
Life stress	Yes	-

Table 82

Ever been told by a doctor that you have:	Time 1	Time 1 excluding high life stress
Angina	No	No
High cholesterol	No	No
Diabetes	No	No
Stroke	No	No
Heart attack	No	No
High blood pressure	Yes	Yes
Nervous trouble / depression	Yes	Yes
Asthma	No	No
Emphysema	No	No
Bronchitis	Yes	Yes
Breast cancer (all workers)	Yes	Yes
Breast cancer (women)	Yes	Yes
Other cancer	No	No

Looking at the results above, the exclusion of individuals who work but who have high life stress seems to make little difference to the pattern of associations between high and low stress and disorders with which the respondent has been diagnosed by a doctor.

Table 83

Suffered from in the last 12 months:	Time 1	Time 1 excluding high life stress
Bronchitis	No	Yes
Arthritis / rheumatism	Yes	No
Sciatica, lumbago, recurring backache	Yes	Yes
Persistent skin trouble	No	No
Asthma	No	No
Hay fever	Yes	Yes
Recurring stomach trouble / indigestion	Yes	Yes
Being constipated	Yes	Yes
Piles	Yes	Yes
Persistent foot trouble	Yes	No
Trouble with varicose veins	No	No
Nervous trouble / persistent depression	Yes	Yes
Persistent trouble with gums / mouth	Yes	Yes
Other recurring health problem	Yes	Yes

When considering the reporting of various classes of symptoms over the last 12 months, it is clear that the exclusion of respondents with high life stress makes relatively little difference to the patterns of associations.

Table 84

Taken in the last 14 days prescribed by a doctor:	**Time 1**	**Time 1 excluding high life stress**
Painkillers	Yes	Yes
Medicines for indigestion	Yes	Yes
Blood pressure tablets	No	No
Sleeping pills	Yes	Yes
Antidepressants	Yes	Yes
Laxatives	Yes	No
Other medicines prescribed by a doctor	Yes	No

The exclusion of high general life stress respondents makes little difference to the pattern of associations identified between prescribed medication ingestion over the last 14 days and level of work stress.

Table 85

Any of the following in the last 14 days:	Time 1	Time 1 excluding high life stress
Cough, catarrh, or phlegm	Yes	Yes
Diarrhoea	Yes	Yes
Heartburn, wind, indigestion	Yes	Yes
Shortness of breath	Yes	Yes
Dizziness or giddiness	Yes	Yes
Earache or discomfort	Yes	Yes
Swollen ankles	Yes	Yes
Nervy, tense or depressed	Yes	Yes
Cold or flu	No	No
Sore throat	Yes	No
Difficulty sleeping	Yes	Yes
Pains in the chest	Yes	Yes
Backache or pains in the back	Yes	Yes
Nausea / vomiting	Yes	Yes
Feeling tired for no apparent reason	Yes	Yes
Rashes, itches / other skin trouble	Yes	No
Blocked or runny nose	No	No
Headache	Yes	Yes
Wheeziness	Yes	Yes
Toothache or trouble with gums	Yes	Yes
Any other complaint in last 14 days	Yes	Yes

Considering the reporting of various classes of symptoms over the last 14 days, it is clear that the exclusion of respondents with high life stress makes relatively little difference to the patterns of associations.

Table 86

Health Scale	Time 1	Time 1 excluding high life stress
HAD anxiety	Yes	Yes
HAD depression	Yes	Yes
GHQ	Yes	Yes
14 day symptom score	Yes	Yes

The exclusion of high general life stress respondents makes little difference to the pattern of associations identified between the scores on the various health indexes and level of work stress.

ASSOCIATIONS BETWEEN HEALTH STATUS AND PERCEIVED WORK STRESS AT TIME 2, EXCLUDING THOSE WITH HIGH LIFE STRESS

One of the primary aims of this research was to investigate the degree to which work stress alone is associated with health status. As at Time 1, one way of looking at this issue is to look at the associations between those with low and high work stress and their health status, after eliminating those respondents with high life stress. This way, we are able to see how those with high work stress (and thus low general life stress) differ in their health status from those workers with both low work and general life stress.

Summary of findings

Is there a significant difference in health status between those with low and high work stress? Comparing original Time 2 analyses with analyses excluding those with high general life stress there is no difference in level of reporting of general health over the last 12 months once we have excluded those respondents with high levels of general life stress.

Table 87

Complaint	Time 2	Time 2 excluding high life stress
12 month health	Yes	Yes
Life stress	Yes	-

Table 88

Ever been told by a doctor that you have:	Time 2	Time 2 excluding high life stress
Angina	No	No
High cholesterol	No	No
Diabetes	Yes	Yes
Stroke	No	No
Heart attack	No	No
High blood pressure	Yes	Yes
Nervous trouble / depression	Yes	Yes
Asthma	No	Yes
Emphysema	No	No
Bronchitis	No	No
Breast cancer (women)	Yes	Yes
Other cancer	No	No

Looking at the results above, the exclusion of individuals who work but who have high life stress seems to make little difference to the pattern of associations between high and low stress and disorders with which the respondent has been diagnosed by a doctor.

Table 89

Suffered from in the last 12 months:	Time 2	Time 2 excluding high life stress
Bronchitis	Yes	Yes
Arthritis / rheumatism	Yes	Yes
Sciatica, lumbago, recurring backache	Yes	Yes
Persistent skin trouble	Yes	Yes
Asthma	No	Yes
Hay fever	No	No
Recurring stomach trouble / indigestion	Yes	Yes
Being constipated	No	No
Piles	Yes	No
Persistent foot trouble	No	No
Trouble with varicose veins	No	No
Nervous trouble / persistent depression	Yes	Yes
Persistent trouble with gums / mouth	Yes	Yes
Other recurring health problem	Yes	No

When considering the reporting of various classes of symptoms over the last 12 months, it is clear that the exclusion of respondents with high life stress makes relatively little difference to the patterns of associations. There are exceptions, for example the association between the reporting of piles and work stress is no longer significant once those workers with high life stress are excluded from the analysis.

Table 90

Taken in the last 14 days prescribed by a doctor:	Time 2	Time 2 excluding high life stress
Painkillers	Yes	Yes
Medicines for indigestion	No	No
Blood pressure tablets	No	No
Sleeping pills	Yes	No
Antidepressants	Yes	No
Laxatives	No	No
Other medicines prescribed by a doctor	No	No

The exclusion of high general life stress respondents makes some difference to the pattern of associations identified between prescribed medication ingestion over the last 14 days and level of work stress. Use of sleeping pills and anti-depressants no longer show significant differences between the groups when those with life stress are excluded.

Table 91

Any of the following in the last 14 days:	Time 2	Time 2 excluding high life stress
Cough, catarrh, or phlegm	No	No
Diarrhoea	Yes	Yes
Heartburn, wind, indigestion	Yes	Yes
Shortness of breath	Yes	Yes
Dizziness or giddiness	Yes	Yes
Earache or discomfort	Yes	Yes
Swollen ankles	Yes	Yes
Nervy, tense or depressed	Yes	Yes
Cold or flu	No	No
Sore throat	No	No
Difficulty sleeping	Yes	Yes
Pains in the chest	No	Yes
Backache or pains in the back	Yes	Yes
Nausea / vomiting	No	No
Feeling tired for no apparent reason	Yes	Yes
Rashes, itches / other skin trouble	Yes	No
Blocked or runny nose	No	No
Headache	Yes	Yes
Wheeziness	Yes	Yes
Toothache or trouble with gums	Yes	No
Any other complaint in last 14 days	No	Yes

Considering the reporting of various classes of symptoms over the last 14 days, it is clear that the exclusion of respondents with high life stress makes relatively little difference to the patterns of associations.

Table 92

Health Scale	Time 2	Time 2 excluding high life stress
HAD anxiety	Yes	Yes
HAD depression	Yes	Yes
GHQ	Yes	Yes
14 day symptom score	Yes	Yes

As at Time 1, the exclusion of high general life stress respondents makes little difference to the pattern of associations identified between the scores on the various health indexes and level of work stress.

DESCRIPTIVE COMMENTARY OF ASSOCIATIONS BETWEEN SELECTED HEALTH-RELATED BEHAVIOURS AND PERCEIVED WORK STRESS AT TIME 1

The first set of questions asked the respondents about their participation in sports or general activities. The respondents were asked to indicate the frequency in which they engaged in various activities.

Q3.1a) How often do you take part is sports or activities that are mildly energetic (e.g. walking, woodwork, weeding, hoeing, bicycle repair, playing darts, general housework)?

The results at Time 1 show that those with low levels of work stress are significantly more likely to engage in mildly energetic forms of activity than those with high levels of work stress. Chi-square 23.72, 3 df, $p<.001$.

Q3.1b) How often do you take part is sports or activities that are moderately energetic (e.g. scrubbing, polishing the car, chopping, dancing, golf, cycling, decorating, lawn mowing, leisurely swimming)?

At Time 1 the results show that those with low levels of work stress are significantly more likely to engage in moderately energetic forms of activity than those with high levels of work stress. Chi-square 12.55, 3 df, $p<.01$

Q3.1c) How often do you take part is sports or activities that are vigorous (e.g. running, hard swimming, tennis, squash, digging, cycle racing, aerobics)?

There is little difference between work stress groups in the frequency in which they engage in vigorous forms of activity. Chi-square 1.17, 3 df, $p>.10$

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Table 93
Exercise by work stress at Time 1

		3 times a week or more		Once or twice a week		About once to three times a month		Never / hardly ever		Total	Significance
		N	%	N	%	N	%	N	%	N	
Mildly energetic	Low Work Stress	1978	62.0	889	27.9	201	6.3	122	3.8	3190	<.001
	High Work Stress	385	52.7	242	33.1	62	8.5	42	5.7	731	
Moderately energetic	Low Work Stress	630	19.8	1207	37.9	929	29.2	416	13.1	3182	<.01
	High Work Stress	151	20.7	245	33.6	205	28.1	129	17.7	730	
Vigorous	Low Work Stress	330	10.4	590	18.6	513	16.2	1740	54.8	3173	Ns
	High Work Stress	82	11.2	142	19.3	109	14.8	402	54.7	735	

Q3.(3a) How many hours of sleep do you have on an average week night?

There is an overall trend indicating that those with higher levels of work stress are likely to sleep for fewer hours on an average week night than those with lower levels of work stress. Chi-square 61.34, 4 df, $p<.001$

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Table 94
Hours of sleep per week night by work stress at Time 1

		5 hours or less		6 hours		7 hours		8 hours		9 hours		Total	Significance
		N	%	N	%	N	%	N	%	N	%		
Hours of sleep	Low Work Stress	236	7.3	826	25.4	1340	41.2	770	23.7	82	2.5	3254	<.001
	High Work Stress	102	13.6	241	32.2	273	36.5	119	15.9	13	1.7	784	

The next section of the questionnaire asked the respondents about their eating and drinking habits. Reported in this section are the responses to questions about breakfast habits and patterns of alcohol consumption.

Q3.5a) How often do you eat breakfast?

The clearest trends in this table indicate that those with high work stress are more likely to habitually skip breakfast, and that a greater proportion of the low work stress group eat breakfast each and every day. Chi-square 11.58, 4 df, $p<.05$

Q3.5b) How often do you eat breakfast cereal?

In similar fashion to the patterns for breakfast in general, the clearest trends in this table indicate that those with high work stress are more likely to habitually skip breakfast cereal, and that a greater proportion of the low work stress group eat breakfast cereal each and every day. Chi-square 19.70, 4 df, $p<.001$

Table 95
Breakfast habits by work stress at Time 1

		Never		Less than once a week		Once or twice a week		Most days		Every day		Total	Significance
		N	%	N	%	N	%	N	%	N	%		
How often do you eat breakfast?	Low Work Stress	316	9.7	287	8.8	440	13.4	597	18.2	1633	49.9	3273	<.05
	High Work Stress	96	12.9	60	8.0	112	15.0	146	19.5	333	44.6	747	
How often do you eat breakfast cereal?	Low Work Stress	627	19.2	537	16.4	565	17.3	724	22.1	819	25.0	3272	<.001
	High Work Stress	192	25.6	107	14.3	115	15.4	176	23.5	159	21.2	749	

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Q3.15) On average how often do you drink during the week?

Those in the high work stress group drink alcohol significantly more frequently on weekdays (Monday to Thursday) than those in the low work stress group.
Chi-square 22.34, 3 df, $p<.001$

Q3.15) On average how often do you drink during at the weekends?

Those in the high work stress group drink alcohol significantly more frequently on weekends (Friday to Sunday) than those in the low work stress group. Chi-square 8.2, 2 df, $p<.05$

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Table 96
Weekday drinking habits by work stress at Time 1

		Never		1-2 days		3 days		4 days		Total	Significance
		N	%	N	%	N	%	N	%	N	
On average how often do you drink during the week?	Low Work Stress	1126	34.6	1270	39.0	375	11.5	482	14.8	3253	<.001
	High Work Stress	221	29.7	268	36.1	96	12.9	158	21.3	743	

Table 97
Weekend drinking habits by work stress at Time 1

		Never		1-2 days		All 3 days		Total	Significance
		N	%	N	%	N	%	N	
On average how often do you drink during at the weekends?	Low Work Stress	569	17.5	2076	63.8	607	18.7	3252	<.05
	High Work Stress	119	16.0	452	60.8	173	23.3	744	

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Table 98
Total weekly alcohol units intake by work stress at Time 1

		Mean	N	Std. Deviation
Weekly alcohol units intake	Low Work Stress	10.82	2201	10.59
	High Work Stress	11.64	498	11.05

Mann-Whitney U Test, p>.10

Although those in the high work stress group drink more frequently on both weekdays and weekends, there is no significant difference between the work stress groups in the self-reported amount of alcohol consumed per week overall.

Q3.10) Do you smoke cigarettes now?

Those with high work stress are significantly more likely to smoke cigarettes than those with low work stress. Chi-square 9.17, 1 df, p<.005

Table 99
Current cigarette smoking by work stress at Time 1

Time 1		Yes		No		Total	Significance
		N	%	N	%		
Do you smoke cigarettes now?	Low Work Stress	886	27.3	2365	72.7	3251	<.005
	High Work Stress	244	32.8	500	67.2	744	

The tables below present the summary for the analyses for the associations between work characteristics and health related behaviours for both time points, and for the change analyses of Time 2 health related behaviours by Time 1 work stress.

Table 100

Type of health related behaviour	Significant association with high work stress?		
	Time 1	*Time 2*	*T2 HRBs T1 WS*
Mildly energetic activity	Yes	Yes	Yes
Moderately energetic activity	Yes	No	No
Vigorous activity	No	No	No
Hours of sleep	Yes	Yes	Yes
Eating breakfast	Yes	No	No
Eating breakfast cereal	Yes	No	Yes
Drinking alcohol – weekdays	Yes	Yes	No
Drinking alcohol – weekends	Yes	Yes	No
Total alcohol units consumed in past week	No	Yes	No
Smoking cigarettes	Yes	No	Yes

In terms of general activity, there is a trend indicating that those people with low levels of work stress engage in mildly energetic forms of exercise more frequently than those with high work stress. However, the analyses of the data over time indicate no significant differences between the groups for moderately energetic or vigorous forms of activity.

Those with high stress are likely to report getting fewer hours of sleep on weekdays that those with low levels of work stress. This finding holds across both time points, and for Time 1 work stress predicting Time 2 health related behaviours.

Although there is no significant difference between the work stress groups in the reported frequency of eating of breakfast in general across time points, there is a significant difference in the reported frequency in eating of breakfast cereal.

There are no clear patterns in differences in the consumption of alcoholic drinks when looking at Time 1 work stress and its relationship with behaviours at Time 2. However, there is a trend indicating that those with high work stress are more likely to smoke cigarettes than those with low work stress.

PERCEIVED CHANGES IN HEALTH AND STRESS OVER THE LAST 12 MONTHS, PRODUCTIVITY AT WORK, AND INJURIES, HOSPITAL VISITS, AND SICK LEAVE

This section looks at Time 2 responses to a series of questions addressing the perceived changes in health and stress in respondents' lives over the previous 12 months. Further, it examines how they perceive the link between work stress and its relationship to the causation or exacerbation of poor health. It also examines the frequency of injuries, visits to hospital and their GP, days taken off as sick leave, accidents and productivity at work.

Only the data for those indicating that they were in paid employment at Time 2 are presented.

Q14.1) Over the past 12 months, how would you say your health in general has changed?

The data below show that those who have indicated that they have high work stress at Time 2 are significantly more likely to perceive their health as poorer than 12 months ago, than those in the low work stress group. Chi-Square = 51.29, 4 df, $p<.0001$

Q14.2) In general, how have you found stress in your job change over the last 12 months?

The data present a clear pattern as expected. Those who rate their work stress as high are significantly more likely to feel that the level of stress in their job has changed for the worse. However, a sizeable proportion of those with low levels of stress also feel that their jobs have also become a little more stressful than 12 months ago.
Chi-Square = 283.14, 4 df, $p<.0001$

Q14.3) How have you found stress in your life change over the last 12 months?

Overall, those with higher levels of work stress at Time 2 are significantly more likely to perceive their lives outside work to have become much more stressful than 12 months ago. Chi-Square = 48.63, 4 df, $p<.0001$

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Table 101
Perceived changes in health over the last 12 months (as measured at Time 2), by work stress at Time 1

		Much worse*		A little worse *		No change *		A little better *		Much better *		Total	Significance
		N	%	N	%	N	%	N	%	N	%	N	
Over the past 12 months, how would you say your health in general has changed?	Low Work Stress	44	2.9	364	23.7	835	54.4	227	14.8	63	4.1	1533	<.0001
	High Work Stress	24	7.6	118	37.3	117	37.0	48	15.2	9	2.8	316	

*than 12 months ago

Table 102
Perceived changes in work stress over the last 12 months (as measured at Time 2), by work stress at Time 1

		Much less stressful*		A little less stressful*		No change*		A little more stressful*		Much more stressful*		Total	Significance
		N	%	N	%	N	%	N	%	N	%	N	
In general, how have you found stress in your job change over the last 12 months?	Low Work Stress	99	6.6	231	15.4	554	37.0	504	33.6	110	7.3	1498	<.0001
	High Work Stress	4	1.3	21	6.6	58	18.4	102	32.3	131	41.5	316	

*than 12 months ago

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Table 103
Perceived changes in life stress over the last 12 months (as measured at Time 2), by work stress at Time 1

		Much less stressful*		A little less stressful*		No change*		A little more stressful*		Much more stressful*		Total	Significance
		N	%	N	%	N	%	N	%	N	%	N	
How have you found stress in your life change over the last 12 months?	Low Work Stress	85	5.5	260	17.0	622	40.6	469	30.6	97	6.3	1533	<.0001
	High Work Stress	8	2.5	37	11.7	95	30.1	130	41.1	46	14.6	316	

*than 12 months ago

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DOES WORK STRESS CAUSE ILL HEALTH, OR MAKE ILL HEALTH WORSE? RETROSPECTIVE PERCEPTIONS OF THE SAMPLE

This section reports answers to Questions 8.11: Thinking about the past year, have you suffered from any illness that you think was caused, or made worse by work?

Time 1

Those in the high stress group are significantly more likely to agree that they have suffered from an illness that was caused by, or made worse by work over the last year.
Chi-Square = 249.97, 1 df, p<.001.

Table 104
Perceptions of ill-health that may have been caused or made worse by work stress at Time 1

		Yes		No		Total	Significance
		N	%	N	%	N	
Thinking about the past year, have you suffered from any illness that you think was caused by, or made worse by work?	Low work stress	590	18.1	2661	81.9	3251	<.001
	High work stress	334	45.4	402	54.6	736	

Time 2

Those in the high stress group are significantly more likely to agree that they have suffered from an illness that was caused by, or made worse by work over the last year. Chi-Square = 97.06, 1 df, p<.001.

Table 105
Perceptions of ill-health that may have been caused or made work by work stress at Time 2

		Yes N	%	No N	%	Total N	Significance
Thinking about the past year, have you suffered from any illness that you think was caused by or made worse by work?	Low work stress	255	17.8	1175	82.2	1430	<.001
	High work stress	130	42.2	178	57.8	308	

Table 106
Perceptions of ill-health that may have been caused or made worse by work stress at Time 1

	Time 1	*Time 2*	*T2 with T1 WS*
Thinking about the past year, have you suffered from any illness that you think was caused, or made worse by work?	Yes	Yes	Yes

WS = work stress

In sum, it is clear that the perception of the respondents in general is that high levels of work stress have caused ill health and / or exacerbated pre-existing ill health.

How productive or efficient do you feel you are at work? (Time 2 only)

Q9.4) How productive or efficient do you feel you are at work?

The table below clearly shows that there is little difference between the work stress groups with regard to their perceptions of their work productivity or efficiency.
Chi-Square = 4.06, 4 df, p>.10

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Table 107
Perceived productivity / efficiency at work by work stress at Time 2

		Not at all productive		Rarely productive		Somewhat productive		Rather productive		Extremely productive		Total	Significance
		N	%	N	%	N	%	N	%	N	%	N	
How productive or efficient do you feel you are at work?	Low Work Stress	28	1.8	36	2.4	334	22.0	739	48.7	379	25.0	1516	>.10
	High Work Stress	5	1.6	9	2.9	83	26.9	143	46.3	69	22.3	309	

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This set of questions at Time 2 asked respondents to think about work-related accidents and health problems, and issues related to these. The response period was defined as within the last 12 months, and each question had several response options.

Q1.10a) How many accidents requiring medical attention have you had in the last 12 months (at work)?

The distribution of scores shows that the great majority of respondents indicate that they had no accidents at work that required medical attention. Although the chi-square statistic shows a significant difference between work stress groups, the low number of responses in some of the cells makes this an unreliable result.
Chi-Square = 7.97, 3 df, $p<.05$

Q1.10b) How many accidents requiring medical attention have you had in the last 12 months (at home)?

There was no difference between work stress groups concerning the rate of accidents at home that required medical attention. Chi-Square = 1.33, 3 df, $p>.10$

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Table 108
Accidents requiring medical attention at work / home by work stress at Time 2

		None		1 to 2		3 to 4		5 to 6		Total	Significance
		N	%	N	%	N	%	N	%	N	
How many accidents requiring medical attention have you had in the last 12 months (at work)?	Low Work Stress	1447	96.3	52	3.5	2	0.1	1	0.1	1502	p<.05
	High Work Stress	295	94.2	15	4.8	3	1.0	-	-	313	
How many accidents requiring medical attention have you had in the last 12 months (at home)?	Low Work Stress	1387	91.5	126	8.3	3	0.2	-	-	1516	>.10
	High Work Stress	286	90.2	31	9.8	-	-	-	-	317	

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Q1.11a) In the last 12 months how frequently have you had minor injuries (e.g. cuts and bruises) that did not require medical attention (at work)?

Over the last 12 months, there is little difference between the work stress groups in the frequency with which respondents received minor injuries at work that did not require medical attention. Chi-Square = 6.37, 3 df, p>.10

Q1.11b) In the last 12 months how frequently have you had minor injuries (e.g. cuts and bruises) that did not require medical attention (at home)?

There is little difference between the work stress groups in the frequency with which respondents received minor injuries at home that did not require medical attention.
Chi-Square = 5.06, 4 df, p>.10

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Table 109
Frequency of minor injuries at work / home by work stress at Time 2

Work Stress Time 2		Not at all		Rarely		Occasionally		Quite frequently		Very frequently		Total	Significance
		N	%	N	%	N	%	N	%	N	%	N	
In the last 12 months how frequently have you had minor injuries (at work)?	Low Work Stress	619	40.8	446	29.4	340	22.4	84	5.5	30	2.0	1519	>.10
	High Work Stress	111	35.5	90	28.8	78	24.9	24	7.7	10	3.2	313	
In the last 12 months how frequently have you had minor injuries (at home)?	Low Work Stress	326	21.4	681	44.7	439	28.8	63	4.1	15	1.0	1524	>.10
	High Work Stress	56	17.7	142	44.9	99	31.3	18	5.7	1	0.3	316	

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Q1.12) Approximately how many days sick leave have you had in the last 12 months?

There was a greater proportion of respondents in the low stress group taking none or between one and five sick days leave in the last 12 months than in the high stress group. However, there is a greater proportion of respondents in the high stress group that take more than six days sick leave over than in the low stress group. This is a highly significant difference. Chi-Square = 23.43, 3 df, $p<.001$

Q1.13) Approximately how many times have you visited your GP in the last 12 months?

There is a significant difference between work stress groups indicating that highly stressed workers visited their GP over the last 12 months more often than low stressed workers. Chi-Square = 24.86, 3 df, $p<.001$

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Table 110
Number of days sick leave in last 12 months by work stress at Time 2

Work Stress Time 2		None		1 to 5		6 to 10		11 to 15		More than 15		Total	Significance
		N	%	N	%	N	%	N	%	N	%	N	
Approximately how many days sick leave have you had in the last 12 months?	Low Work Stress	583	38.4	598	39.4	162	10.7	72	4.7	102	6.7	1517	<.001
	High Work Stress	103	32.8	112	35.7	41	13.1	13	4.1	45	14.3	314	

Table 111
Number of GP visits by work stress at Time 2

Work Stress Time 2		None		1 to 3		4 to 6		7 to 9		More than 9		Total	Significance
		N	%	N	%	N	%	N	%	N	%	N	
Approximately how many times have you visited your GP in the last 12 months?	Low Work Stress	355	23.3	893	58.5	210	13.8	39	2.6	29	1.9	1526	<.001
	High Work Stress	49	15.6	175	55.6	62	19.7	17	5.4	12	3.8	315	

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Q1.14) How many times have you visited hospital as an out-patient in the last 12 months?

There is a marginal difference between work stress groups in the number of times they visited hospital as an out-patient in the last 12 months.
Chi-Square = 7.69, 4 df, p=.10

Q1.15) How many times have you been an in-patient in hospital in the last 12 months?

There is little difference between work stress groups in the number of times they visited hospital as an in-patient in the last 12 months. Although the chi-square statistic shows a significant difference between work stress groups, the low number of responses in some of the cells makes this an unreliable result. Chi-Square = 10.65, 4 df, $p<.05$

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Table 112
Hospital in- / out-patient visits over last 12 months by work stress at Time 2

Work Stress Time 2		None		1 to 3		4 to 6		7 to 9		More than 9		Total	Significance
		N	%	N	%	N	%	N	%	N	%	N	
Hospital out-patient in the last 12 months?	Low Work Stress	1070	70.0	376	24.6	55	3.6	12	0.8	16	1.0	1529	p=.10
	High Work Stress	205	65.1	91	28.9	8	2.5	6	1.9	5	1.6	315	
Hospital in-patient in the last 12 months?	Low Work Stress	1408	92.1	117	7.7	3	0.2	1	0.1	-	-	1529	<.05
	High Work Stress	285	90.2	28	8.9	1	0.3	-	-	2	0.6	316	

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Table 113
Frequency of memory, attention or action problems by work stress at Time 2

Work Stress Time 2		Not at all		Rarely		Occasionally		Quite frequently		Very frequently		Total	Significance
		N	%	N	%	N	%	N	%	N	%	N	
Frequency of memory, attention, or action problems (work)	Low Work Stress	265	17.3	541	35.4	570	37.3	127	8.3	27	1.8	1530	<.001
	High Work Stress	32	10.2	73	23.2	128	40.8	64	20.4	17	5.4	314	
Frequency of memory, attention, or action problems (home)	Low Work Stress	211	13.8	515	33.7	582	38.0	189	12.4	33	2.2	1530	<.0001
	High Work Stress	30	9.5	80	25.4	119	37.8	76	24.1	10	3.2	315	

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Table 114
Insomnia by work stress at Time 2

Work Stress Time 2		Not at all		Rarely		Occasionally		Quite frequently		Very frequently		Total	Significance
		N	%	N	%	N	%	N	%	N	%	N	
Insomnia	Low Work Stress	406	26.4	488	31.8	433	28.2	157	10.2	51	3.3	1535	<.001
	High Work Stress	44	13.9	79	24.9	114	36.0	54	17.0	26	8.2	317	

THE COHORT STUDY

AIMS

This study involved a detail investigation of a cohort from the main sample. The first aim was to determine whether similar results were obtained with established questionnaire indicators of occupational stress and health. Another aim was to determine whether differences in subjective responses between stressed and non-stressed participants could be explained by personality differences such as negative affectivity. A second part of the study involved a physical examination and taking of blood samples for routine haematological and biochemical assays. Salivary cortisol was also measured as this is considered an objective measure of stress. Finally, objective measures of performance efficiency were taken to determine whether perceived work stress was associated with objective impairments.

METHODS

The study involved four parts:

1. Administration of a series of questionnaires providing a more detailed profile of stress and physical and mental health.
2. A clinical examination and taking of blood samples.
3. Collection of saliva samples at the start and end of the working week (an early morning and evening sample at each time point) so that cortisol levels could be measured.
4. A performance test battery (using measures known to be sensitive to changes in state).

SAMPLE

110 non-stressed, 68 high work stressed participants and 10 stressed outside of work but not at work (approximately 50% males and females in each group; mean age approximately 40, range 23-60 years). Analyses have largely focused on the comparison between high and low work stress groups due to the small sample size in the other category.

SELECTION OF THOSE DOING LABORATORY PHASE OF THE STUDY

Selection was carried out after Time 2, mailing 2.

Stressed group selection criteria:

- Agreed to participate in all stages of follow-up
- Employed, but had not changed job
- Work Stressed (scored 4 or 5) at both time 1 and time 2

All those who volunteered were tested.

Other groups

Life stress group selection criteria:

- Agreed to participate in all stages of follow-up
- Employment status unimportant
- Life Stressed (scored 4 or 5) at both time 1 and time 2, regardless of work stress scores

All those who volunteered were tested.

Non-stressed group selection criteria:

- Agreed to all participate in all 3 stages of follow-up
- Did not score 4/5 on work stress at BOTH time points.

There were many more volunteers in this category and a 1 in 4 random selection strategy was used to select participants.

PROCEDURES

QUESTIONNAIRES SENT OUT PRIOR TO THE VISIT

Prior to visiting the laboratory volunteers completed questionnaires aimed at providing a more detailed profile of their occupational stress (the Occupational Stress Indicator – Cooper et al., [19]), physical and mental health (Beck depression inventory[20]; profile of fatigue related states, Ray et al., [21]), mood (Zevon and Tellegen,[22]), and negative affectivity (the Spielberger Trait Anxiety Inventory[23]).

On arrival each participant handed in saliva samples and questionnaires which had been sent with their appointment date. Participants were asked to take their samples as follows:-

Sample 1 - Before breakfast on the first day of the working week, (8am)
Sample 2 - Around 10pm on the same day (bedtime)
Sample 3 - Before breakfast last day of working week
Sample 4 - Bedtime last day of working week

Participants were asked what time and date they took each of their samples and this was recorded on their testing pack cover sheet. If samples and/or questionnaires were not handed in, a freepost envelope was given for their return and a note was made of this on their sheet.

Participants were then asked to go to the toilet. It was explained that their blood pressure was going to be taken and an empty bladder assisted with an accurate reading.

Participants were then taken to a testing room and asked to sit and relax for a few minutes. This was carried out to ensure subjects were relaxed before blood pressure and pulse were taken.

Blood pressure (and pulse) were taken using Omron automatic blood pressure machines pre-set to 170 inflation. Systolic, diastolic and pulse readings were taken and written down on the cover sheet.

Participants were asked a number of questions about their health and any medication they may use.

Participants were given the sleeping and eating questionnaire to complete.

MOOD RATING

Participants were then moved in front of the computer screen and told they were going to do a number of simple tests starting with a mood scale. The keys to use on the response box were shown to them (left button, right button and space button).

They were then told that a scale with an extreme mood at either end such as happy and sad would appear on the screen and that they needed to decided where on the scale they were feeling at present. To do this they were told to move the pointer on the scale to the left or right using the two buttons marked left or right. They were told to tap gently on the keys and not to hold them down. Once the pointer was in the correct position they needed to press the space bar which would record their choice and immediately bring up the next scale. They were told there were no time restrictions so to take their time. They were then asked to read the instructions on the screen and to press the space button when ready.

Experimenters were told to watch whilst the participants were carrying out the tests to ensure they were doing them correctly.

Whilst the participants were carrying out their computer tests, experimenters read through their sleeping and eating questionnaire to check all questions were answered.

SIMPLE VARIABLE FORE-PERIOD REACTION TIME

Participants were informed that the next two tests would have a short practice phase and then a longer test session. They were told that in this particular test a box would appear in the middle of the screen, followed by a filled-in square being randomly displayed in the middle of the box, requiring them to press the space bar as soon as they saw the square appearing inside the box. They were told that their reaction time was being tested so to make sure they pressed the space bar as soon as the square appeared. Participants were asked to read the instructions on the screen and press the space button when ready to begin.

REPEATED NUMBERS VIGILANCE TASK

Participants were told that three digit numbers such as 405 and 867 would be flashed onto the screen quite quickly and that they had to spot when the same three digit numbers were shown twice in a row say 455 then 455. As soon as this happens they were told to press the space bar. Again, they were forewarned that there would be a short practice session followed by a longer test session and that speed was important so to press the space bar as soon as they saw a digit repeated. Again, they were asked to begin the test by pressing the space button after they had read the instructions on the screen.

THE NEW ADULT READING TEST (NART) – A measure of intelligence

The participants were made to face the experimenter and were given a list of words. They were asked to read each word out loud firstly down the left hand column then the right. They were told that some were harder than others and to take their time reading each one as the test would not be timed. Experimenters were told to take their first answer unless it was obvious that the participant had just misread the word rather than was trying different ways of pronouncing it. They were also told not to prompt. Scoring comprised of making marks next to the words which were pronounced incorrectly and when finished this number was recorded as their NART score. Experimenters were given sheets with the meanings of all the words used in case participants asked for meanings of the more unusual words. Furthermore, experimenters were told they could inform participants after the test of specific pronunciations if requested, but to keep this to a minimum.

THE STROOP COLOUR-WORD TEST - a measure of selective attention

Participants were handed the first of four stroop sheets (colours control) and was asked to read out loud the colour of each set of blocks as fast as they could, as they would be timed, from left to right as if reading a book. Experimenters followed the participants as they read them out loud on their own answer sheet. Errors were not recorded. The time was recorded after the last colour was read on the sheet. Participants were then, in order, given the other 3 sheets one at a time and the procedures for the first sheet were repeated. The second sheet displayed the names of colour words (red, blue, green and yellow) printed in different colours (e.g. the word red would be typed in blue). Participants were asked to name the colours the words were printed, in not the words themselves.

The third sheet was a word control where the names of the words were printed in black. Finally sheet two was used again, but the participants were asked to read out the names of the words not the colours that they were written in.

WORK RELATED QUESTIONS

Finally, experimenters went through the work related questions with the participants. They firstly checked if the participants were shift workers, then attempted to establish a usual working week pattern. The first day they started their working week was written down with the time they started in the morning and time they finished. Their lunch breaks were deducted each day and their total number of hours were written down. The process was followed for each day of their working week and final total number of hours worked for the week was recorded. It was checked whether this was their typical working week.

Their blood pressure was taken again and any comments were written down.

When all the tests were completed, the participants were taken to reception to sign up for a medical appointment. Firstly, an information sheet was given to the participants to read explaining about the medical testing procedure. A consent form was given to the participants to sign giving permission for us to contact the participant's GP if anything unusual was found in their blood sample. This was witnessed by the experimenter or receptionist. An appointment was made for a convenient evening.

Finally, the participants were asked if they wanted any travel expenses.

CLINICAL EXAMINATION

On arrival participants were asked to go behind a screen and take their outer garments off keeping their underwear on.

Their date of birth was taken and then a number of measurements. Each measurement was taken twice to ensure accuracy. If the two measurements were similar, but only a few millimetres different the average of the two was recorded. If the two measures were very different (five millimetres or so) a third or fourth measurement would be taken until two measurements were similar or the same.

1. Standing Height

A Leicester Height Measure was used for this measurement. Participants were asked to stand with feet together, flat on the baseboard and heels against the stadiometer back plate, centrally placed. Participants were asked to let their arms hang loosely by their sides. The experimenter tilted the participants head to the Frankfurt-plane position. In this position the head should be placed so that an imaginary line passing through the external ear canal and across the top of the lower bone of the eye socket immediately under the eye is parallel to the floor (i.e. horizontal).

Participants were then instructed to stretch up making themselves as tall as possible, take a deep breath and relax the shoulders. While this was occurring the experimenter was applying gentle pressure upwards to the bony prominence just behind the ears. When the experimenter was happy with the position the measuring arm was lowered gently onto the participants' head and a reading was taken from the arrows on the upright to the last millimetre. The participants were asked to relax and the process was repeated.

2. Sitting Height

Participants were seated on a stool positioned over the base of the stadiometer. They were asked to keep their feet and knees together with feet flat on the floor. Their heads were tilted to the Frankfurt-plane position as in the height measurement and the measuring arm gently lowered. The

final measurements are for the trunk length with the height of the stool deducted from the above measurement.

3. Weight

The participants were weighed using electrical scales. They were asked to stand quite still on the scales in the centre of the platform. The reading was taken in kilograms. Participants were asked to step off the scales wait for the reading to go back to zero and the scales to turn off, then to step back on.

For all the following measurements a tape measure was used with a spring balance attached. The tape was pulled taut until the spring balance registered 600 GMS. Participants were always positioned to stand looking straight ahead with their feet together arms loosely by their sides. The measurements were taken with the experimenter holding the spring balance in their right hand, the side which reads inches lying flat against the participants skin.

4. Waist (Mid-costal Iliac Crest)

Participants were positioned standing looking straight ahead feet together with arms loosely by their sides. The experimenter first needed to locate and mark the base of the right mid costal margin (lowest point on the rib cage). Then the experimenter located and marked the top mid point of the iliac crest. A measurement was made of the midpoint between these two points. The procedure was then repeated on the left side. This waist measurement was then made by applying the tape measure at these marked levels around the circumference with the balance at 600 GMS.

5. True Waist (smallest circumference below costal margin)

The tape was applied at the level of the costal margin and lowered until the smallest circumference below the level of the costal margin was found. If the circumference of the participants' abdomen increased from the costal margin downwards (i.e. there was no true waist) then the waist measurement was simply the circumference at the level of the costal margin.

6. Hip Circumference

This circumference was taken at the level of the greater trochanter. The most lateral bony prominence of the greater trochanter was found and marked on the left and right sides and the tape was positioned over this mark. Alternatively, if the trochanter was hard to find the measurement was taken at the largest gluteal circumference.

Blood samples

Following their physical measurements, participants were taken into the laboratory to have their blood taken.

Two vacutainers of blood were taken from each participant. These were sent to the Bristol Royal Infirmary for routine biochemical and haematological analyses.

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RESULTS OF THE COHORT STUDY

QUESTIONNAIRE DATA

The high work stress group had higher stress scores and more health problems (as measured by Cooper's Occupational Stress Indicator and other standard measuring instruments such as the Beck Depression Inventory). These effects are shown in Tables 115 and 116.

Table 115
Questionnaires measuring physical and mental health (Scores are the means, S.D.s in parentheses)

	Low Stress (N=103)	High Work Stress (N=63)	
Spielberger Trait Anxiety (high scores = more anxious)	40.8 (8.5)	47.1 (9.1)	P<0.0001
Beck Depression Inventory (high scores = more depressed)	6.9 (5.5)	8.9 (6.6)	P<0.05
Negative mood this week (high scores = more negative mood)	14.4 (9.4)	21.3 (11.2)	P<0.0001
Profile of Fatigue States: (1) Fatigue (high scores = greater fatigue)	28.6 (14)	38.8 (15)	P<0.0001
(2) Cognitive difficulty (high scores = greater cognitive problems)	26.2 (11.5)	32.5 (14.4)	P<0.01
(3) Somatic symptoms (high scores = more somatic symptoms)	29.6 (13.3)	33.6 (15.3)	P=0.08
(4) Emotional distress (high scores = more emotional distress)	36.9 (16.1)	51.1 (19.6)	P<0.0001

Table 116

Scores from the sub-scales of the occupational health indicator (scores are the means, s.d.s in parentheses)

	Low Stress	High Work Stress	
(1) Satisfaction with achievements at work	22.4 (5.5)	20.0 (6.1)	P<0.05
(2) Satisfaction with job itself	16.6 (3.1)	15.0 (3.4)	P<0.005
(3) Job satisfaction:			
(a) Organisational design	17.7 (4.3)	15.0 (4.5)	P<0.0005
(b) Organisational processes	15.7 (3.4)	14.3 (3.9)	P<0.05
(c) Personal relationships	12.2 (2.4)	10.8 (2.6)	P<0.0005
(d) Broad view	20.1 (3.8)	17.4 (4.3)	P<0.0001
(4) Mental health problems	65.6 (7.7)	71.0 (8.2)	P<0.0001
(5) Physical health problems	34.7 (11.3)	38.2 (10.4)	P<0.05
(6) Type A:			
(a) Attitude to living	22.9 (3.0)	22.0 (3.7)	P=0.09
(b) Style of behaviour	17.0 (3.9)	18.7 (4.6)	P<0.05
(c) Ambition	11.5 (1.9)	10.4 (2.0)	P<0.001
(d) Broad view	22.1 (2.9)	21.1 (3.6)	P=0.08
(7) Control			
(a) Organisational forces	18.9 (2.6)	20.2 (3.1)	P<0.005
(b) Managerial processes	16.1 (1.8)	16.8 (2.2)	P<0.05
(c) Individual influence	10.9 (1.5)	10.5 (2.2)	Ns
(d) Broad view	18.4 (2.3)	19.4 (2.7)	P<0.01
(8) Pressure			
(a) Factors intrinsic to job	27.1 (8.6)	32.9 (6.5)	P<0.0001
(b) Managerial role	32.4 (9.8)	39.2 (7.5)	P<0.0001
(c) Relationships with others	30.0 (8.2)	35.3 (8.0)	P<0.005
(d) Career/Achievement	26.1 (8.6)	28.7 (7.7)	P=0.05
(e) Organisational structure	35.3 (10.3)	43.0 (10.4)	P<0.0001
(f) Home/work interface	29.1 (10.8)	34.9 (9.7)	P<0.005
(9) Coping			
(a) Social support	15.1 (3.1)	15.5 (3.2)	Ns
(b) Task strategies	25.0 (3.1)	24.8 (4.0)	Ns
(c) Logic	11.8 (1.9)	11.8 (2.1)	Ns
(d) Home/work interface	16.0 (3.8)	14.7 (3.3)	P<0.05
(e) Time management	14.3 (2.3)	14.3 (2.2)	Ns
(f) Involvement	23.1 (2.6)	21.9 (3.6)	P<0.05

NEGATIVE AFFECTIVITY

Some effects were no longer significant when negative affectivity (trait anxiety) was co-varied but the majority could not be totally accounted for by this factor (see Table 117).

Table 117
Effects of co-varying negative affectivity (scores are the adjusted means from the analysis of covariance, s.e.s. in parentheses)

	Low Stress	High Work Stress	
Emotional Distress	38.8 (1.5)	45.6 (2.0)	P<0.01
Fatigue	30.0 (1.7)	37.2 (2.2)	P<0.01
Cognitive difficulty	28.9 (1.3)	28.8 (1.7)	Ns
Somatic symptoms	31.1 (1.6)	30.4 (2.2)	Ns
Occupational stress Indicator: mental health	66.7 (0.9)	70.2 (1.2)	P<0.05

CLINICAL EXAMINATION AND BLOOD ASSAYS

The only significant difference between the groups was for oral temperature, with the work stress group having a higher mean temperature (see Table 118).

Table 118
Results from the clinical examination (scores are the means, s.d.s in parentheses)

	Low Stress Group (N=109)	High Work Stress (N=66)	
1st Systolic BP mm/hg	130.2 (21.0)	128.9 (16.1)	Ns
1st Diastolic BP mm/hg	82.8 (11.9)	84.1 (11.2)	Ns
1st Pulse – beats/min	74.0 (13.2)	71.4 (12.4)	Ns
2nd Systolic BP	128.8 (20.8)	127.4 (17.0)	Ns
2nd Diastolic BP	84.2 (11.5)	86.8 (15.1)	Ns
2nd Pulse	68.2 (10.4)	67.5 (11.8)	Ns
Standing height (cm)	168.4 (8.8)	169.6 (8.5)	Ns
Sitting height (cm)	89.4 (4.0)	89.9 (3.6)	Ns
Weight (kg)	74.5 (14.9)	76.7 (15.4)	Ns
Waist (cm)	89.1 (13.6)	88.9 (13.1)	Ns
Hip (cm)	100.2 (8.5)	100.6 (10.7)	Ns
Oral Temp (°c)	36.73 (0.30)	36.86 (0.27)	P<0.05

The blood assays showed that the work stress group had higher levels of haemoglobin and globulin (see Table 119).

Table 119
Results from blood assays (scores are means, s.d.s in parentheses)

	Low Stress (N=86)	High Work Stress (N=51)	
Hb	13.8 (1.3)	14.4 (1.2)	P<0.05
Plt	270.7 (68.7)	252.3 (46.9)	Ns
WBC	7.8 (2.0)	8.2 (1.8)	Ns
RBC	4.7 (0.4)	4.8 (0.4)	Ns
HCT	0.43 (0.04)	0.44 (0.4)	P<0.05
MCV	92.8 (4.3)	93.7 (4.4)	Ns
MCH	29.5 (1.8)	30.0 (1.5)	Ns
MCHC	31.7 (1.0)	32.1 (0.9)	P<0.05
NEUT	4.5 (1.5)	4.8 (1.6)	Ns
LYMPH	2.4 (0.6)	2.4 (0.6)	Ns
MONO	0.6 (0.2)	0.6 (0.2)	Ns
EOSI	0.2 (0.2)	0.2 (0.1)	Ns
BASO	0.05 (0.05)	0.04 (0.04)	Ns
LUC	0.15 (0.08)	0.14 (0.06)	Ns
PLASMAVI	1.65 (0.07)	1.67 (0.08)	Ns
CREATIN	100.9 (13.8)	100.3 (13.3)	Ns
UREA	5.4 (1.1)	5.2 (1.2)	Ns
SODIUM	138.6 (1.7)	138.2 (1.7)	Ns
POTASSIUM	4.07 (0.3)	4.05 (0.3)	Ns
BILIRUBIN	9.02 (5.3)	8.74 (3.1)	Ns
ALKPHOS	71.9 (20.7)	72.6 (19.7)	Ns
ASPAMINO	22.2 (6.5)	23.5 (6.8)	Ns
TOTPROTEIN	71.8 (3.6)	72.8 (4.0)	Ns
ALBUMIN	46.7 (2.7)	46.8 (2.5)	Ns
GLOBULIN	25.2 (2.8)	26.2 (3.2)	P=0.06

CORTISOL LEVELS

There were no differences between low and high work stress in the cortisol assays. However, those with high stress outside of work did have higher cortisol levels at three of the four time points (see Table 120).

Table 120
Cortisol levels (scores are mean levels – nmol/1 – sd's in parentheses)

	Low Stress (N=83)	High Work Stress (N=46)	Life Stress (N=7)
Start of week			
- Early morning	6.6 (4.2)	6.2 (2.8)	10.4 (4.6)
- Evening	1.5 (1.2)	1.3 (1.2)	1.5 (1.9)
End of week			
- Early morning	6.6 (3.7)	6.5 (3.0)	9.9 (3.4)
- Evening	1.4 (1.4)	1.2 (1.0)	2.9 (2.0)

Life stress group have significantly higher levels at all time points except the evening at the start of the week.

MOOD AND PERFORMANCE

The work stress group had a more negative mood at the time of visiting the laboratory, which suggests that the effect of occupational stress continues outside the work place (see Table 121).

Table 121
Performance and mood at time of testing (scores are the means, s.d.s in parentheses)

	Low Stress (N=110)	High Work Stress (N=67)	
Alertness (High scores = more alert)	282 (72)	260 (75)	P=0.06
Hedonic Tone (high scores = more positive mood)	223 (51)	201 (54)	P<0.01
Anxiety (high scores = calmer)	102 (29)	88 (31)	P<0.005
Spielberger State Anxiety (high scores = more anxious)	37.4 (9.2)	43.6 (9.3)	P<0.0001
NART Errors (fewer errors = higher intelligence)	15.3 (8.6)	14.3 (9.3)	Ns
Simple RT (msecs)	315 (72)	310 (54)	Ns
Stroop Colour Naming (sec)	54.7 (9.8)	52.9 (8.9)	Ns
Stroop Name Colour, ignore word	88.8 (20.1)	84.0 (19.2)	Ns
Stroop Word Naming	42.9 (7.0)	40.4 (6.1)	P<0.05
Stroop Name Word, ignore colour	44.3 (9.0)	41.6 (8.0)	P=0.06
Vigilance hits (maximum = 24)	13.8 (4.1)	12.9 (4.5)	Ns
Vigilance RT to Hits (msecs)	563 (88)	590 (101)	P=0.06
Vigilance False Alarms	3.7 (3.9)	5.0 (7.4)	Ns

The groups were well matched with regard to intelligence and most of the performance measures showed little difference between them. There was some evidence that simple tasks (e.g. word

naming) were actually performed better by the work stress group and that only the sustained attention task gave any indication of an impairment in the high work stress group.

DISCUSSION

The cohort study confirmed the higher stress levels and greater reported health problems of the high work stress cohort. This shows the validity of our method of categorising the groups. These effects could not be accounted for by negative affectivity which fits with the finding that the high work stress group did not have a general bias towards reporting stress, only work stress. The results from the Occupational Stress Indicator validate our measure of stress and reveal the following profile of our stressed sample:

- Lower job satisfaction
- More mental health problems
- More physical health problems
- Less likely to show Type A behaviour
- Greater perception of control
- More pressure in all aspects of the job
- Less able to cope with the home/work interface

Results from the clinical examination showed no difference between the groups for cardiovascular parameters but did reveal that the work stress group had higher oral temperatures. This finding agrees with a previous result obtained by Cohen et al,[24] 1993. The blood assays showed that the work stress group had higher haemoglobin levels. Again, this has been observed before and is referred to as "stress erythrocytosis" (Harrison, Principles of Internal Medicine, 11th edition). Stress erythrocytosis refers to:
"the polycythemia seen occasionally in very active, hard-working, middle aged ..... in a state of anxiety". The clinical significance of this condition is unclear.

The cortisol results showed no effect of work stress. However, this does not reflect a poor methodology in that the usually circadian variation could be clearly seem. Furthermore, cortisol levels were higher in those with high life stress. This suggests that cortisol may be a method for

distinguishing between stress at work and stress outside of the work place. Further work on this topic is clearly required.

The mood and performance data showed that the more negative mood reported by the work stress group persists outside of work. The performance data suggests that simple tasks appear to be largely unimpaired in the work stress group but there was evidence suggesting that sustained attention may be vulnerable to effects of work stress. This again fits in with literature on the effects of specific occupational stressors (e.g. noise). It also has implications for human error and accidents, which often occur because of lapses in attention.

The lack of differences in other objective measures is not uncommon in stress research. The absence of some effects may reflect the sample size. However, the ability to detect effects in the high "stress outside work" group, with only an N of 10, suggests that sample size considerations are not the crucial ones. Similarly, it cannot be argued that the tests are insensitive – other research has shown that they are sensitive measures of abnormal environments and physiological states. The results from the current study suggest that the present approach is well worth while following up, in that we now have very clear information on the scale of subjective perceptions of occupational stress, but do not have the same amount of information on the prevalence of differences in objective measures in low and high work stress groups. Performance indicators are clearly essential variables in leading to changes in working practice, and it is now important to investigate the scale of stress effects on such measures. The present study suggests that such a study is now required.

CONCLUSIONS AND RECOMMENDATIONS FOR FURTHER RESEARCH

(1) THE SCALE OF PERCEIVED OCCUPATIONAL STRESS

The answer to the question "What is the scale of occupational stress?" will clearly depend on how one defines stress. One way of doing this is to look at exposure to potentially stressful working conditions. Another approach involves investigation of changes in health status associated with stress in the workplace. Perceived stress has been the focus of this report but we have also shown that this is associated with stressful working conditions and with greater ill-health. Given that this project has largely been concerned with subjective reports it is appropriate to put the main emphasis on perceived stress. The reports of perceived stress were found to be normally distributed and this raises the question of where one should put the cut-off point which defines someone as stressed. We have chosen to put it at the "very stressed" category for two main reasons. First, we consider that no organisation would want their employees to be very stressed. Secondly, it is common practice to define your "high" group as the upper quartile, and our estimate of the prevalence of perceived occupational stress falls close to this figure. Two aspects of the results justify our method of defining high and low stress. First, although there are significant differences between the high and low stress groups for many health measures these are often numerically small effects which suggests that it would be unwise to use a less strict criterion for defining the high stress category. Other effects, such as the associations between stress and mental health, are much stronger and this argues against using a stricter criterion for defining the high stress category. Indeed, the levels of the psychiatric problems in the very and extremely stressed groups are, on average, at those where the person would be classified as a psychiatric case. If one moves to lower levels of stress one still finds levels of psychopathology which are greater than those reported by individuals who state that they are not at all stressed. However, the extent of the mental health problems in the groups who report lower occupational stress does not suggest that it would be appropriate to consider these levels to be associated with a high prevalence of psychiatric cases.

Further research is required using alternative definitions of stress and comparison of the estimates given by these different approaches made. Similarly, a more detailed examination of lower stress levels is required to determine whether these are also associated with impaired health and well-being.

(2) RELIABILITY AND VALIDITY OF PERCEPTIONS OF OCCUPATIONAL STRESS

Data collected one year after the original survey showed that our original estimate of the scale of perceived occupational stress was reliable. It has already been mentioned that perceptions of stress were associated with increased exposure to potentially stressful working conditions and with a deterioration in physical and mental health. Further validation of our measure of stress was obtained in the cohort study which showed that it was associated with scores on a more detailed stress indicator (the Occupational Stress Indicator)

(3) DEMOGRAPHIC VARIATION IN THE SCALE OF STRESS

There was an approximately equal distribution of male and female respondents in the high work stress group at both time points. At both time points workers at either end of the age range (18-24, 55-64) reported lower levels of stress than the 25-54 age groups. Further research is now required to examine other factors such as the impact of socio-economic variables.

(4) JOB TYPE

Full-time employment was associated with greater stress than part-time employment.
Further research must now consider the types of job associated with the high stress levels. This information was collected here but still requires analysis.

(5) WORK CHARACTERISTICS AND PERCEIVED STRESS

The present study confirmed associations between certain work characteristics and perceived stress e.g.

- Hours of work – shiftwork, long working hours
- Exposure to physical agents – noise
- Demanding work – having to work fast
- Lack of support at work

Analysis of the questions based on the Karasek dimensions showed that in our sample high stress levels were most strongly correlated with high demand. Perceived stress was also correlated with skill discretion and lack of work social support but not with decision authority.

Perceived stress was also associated with less job satisfaction and with problems with the work/home interface. High stress was also associated with bullying.

The profile of significant effects was very similar at both time points.

Further research is now required to provide a more objective assessment of work characteristics and to determine whether such measures are also associated with perceived stress. Interventions changing the nature of work also need to be assessed, as these will provide the strongest evidence for possible causal links between work characteristics and perceived stress.

(6) HEALTH OUTCOMES

Many chronic health problems were not associated with stress at work. However, the following were associated with stress at work:

- High blood pressure
- Nervous trouble/depression
- Bronchitis
- Breast cancer

All of the health problems assessed over the last 12 months, except persistent skin trouble and asthma, were greater in the high work stress group. Similarly, acute illnesses over the last two weeks were more frequent in the high stress group. Use of medication was more common in the high stress group, who also visited their GP more frequently and had more sick leave from work.

A similar profile of effects was found in the re-test data and a cross-lagged analysis (examining the association between time 1 stress and time 2 health) provided the strongest evidence for a causal link between the stress and health outcomes. Finally, there was very clear evidence that more of the high work stress group believed that they had been ill because of work or had had an

illness that was made worse by work. Similarly, the high stress group were more likely to state that their health had deteriorated over the last 12 months.

(7) HEALTH-RELATED BEHAVIOURS

High levels of perceived occupational stress were associated with more sleep problems, less exercise, more frequent alcohol consumption, a greater likelihood of being a smoker and poorer diet (e.g. skipping breakfast). These provide a possible mechanism for a link between stress and health and, indeed, some of the cross-lagged analyses revealed that stress at time 1 was associated with more negative health-related behaviours at time 2.

(8) ACCIDENTS AND HUMAN ERROR

The high stress group reported more accidents at work (but not outside work) in the last 12 months. Similarly, they were more likely to report problems of memory, attention and action.

Further research is now required to look in more detail at associations between levels of stress and performance indicators. If such effects are found this will provide strong evidence to employers about the benefits of preventing or reducing stress at work.

(9) WORK STRESS OR LIFE STRESS?

It has often been argued that stress at work may actually reflect problems occurring outside of the work place. Reported levels of stress outside of the work place were much lower than the levels of occupational stress. Indeed, excluding those with life stress made little difference to the associations between occupational stress and health.

(10) NEGATIVE AFFECTIVITY

Results from the cohort study suggested that the effects of stress could not be solely attributed to the personality trait of negative affectivity.

(11) OBJECTIVE INDICATORS OF STRESS

The cohort study revealed that the subjective reports of occupational stress were associated with differences in physiological functioning and mental performance. Furthermore, even where no effect of occupational stress was found this was often in contrast to the effects of life stress (e.g. in the cortisol assays). This suggests that further research on the effects of occupational stress on objective measures is warranted and that it may be possible to distinguish stress at work from other types of stress using such measures.

OVERALL SUMMARY

1. Phase 1 of the study involved the successful completion of the study of occupational stress. After extensive piloting, 17,000 randomly selected people from the Bristol electoral register were mailed a 32-page questionnaire, eliciting a final response rate of 49%. The final figures indicated that occupational stress was at levels described as 'very' or 'extremely stressful' (described as 'highly stressed') for approximately 20% of the working sample that responded.

2. Full demographic analyses of the sample at both time points are presented, including comparison of rates of illness for chronic conditions when compared with other large sample databases, and comparison of selected working conditions experienced by other samples comparable to the one reported in the Bristol Stress and Health Study.

3. Occupational stress has been described according to various demographic profiles, including gender, age category, and whether the person has a full-time or part-time job.

4. Associations with the various components of the Karasek job strain model indicate that the work stress measure in the Bristol Stress and Health Study is best thought of as representing respondents' job demand.

5. High occupational stress was significantly associated with a number of work characteristics that have been identified with occupational stress in the existing literature.

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6. High occupational stress was also strongly related to a number of health outcomes (as measured by different instruments), including; chronic ill-health conditions, symptoms over the last 12 months, symptoms over the last 14 days, and with the use of prescribed medication.

7. High occupational stress was also strongly related to a number of health-related behaviours, such as number of hours of sleep during week days.

8. At approximately 12 months after the initial phase of the study, a second mailing to 4673 participants who agreed to be contacted again took place, yielding a response rate of 69%. At this point, participants were also recruited to the laboratory phase of the study.

9. Analyses of the Time 2 data set revealed a regression of work stress scores towards the mean point, as was expected. Approximately 18% of those working at Time 2 indicated that their occupational stress was at levels described as 'very' or 'extremely stressful'.

10. A similar pattern of results regarding associations between work stress and health, health-related behaviours, and work characteristics were found at Time 2, compared to Time 1.

11. Analyses of change scores for Time 1 work stress upon Time 2 health status revealed that the effects of high job stress upon acute gastro-intestinal symptoms, fatigue, tension, depression, and anxiety, as well as a number of other symptoms were robust.

12. Analyses of change scores for Time 1 work characteristics upon Time 2 work stress indicated that work characteristics were significantly associated with work stress, including items indicating that work issues interfered strongly with family life.

13. At Time 2, analyses revealed that work stress was significantly associated with sick leave, GP visits and accidents.

14. There was little difference in the overall pattern of associations between work stress and health at Time 1, Time 2, or when examining change scores across time, when those with high general life stress scores (at Time 1) were excluded from the analyses. This indicates that

the effects of work stress are to a large degree independent from those of general life stress as measured by this questionnaire

15. The cohort study involved comparisons between a group of people identified as work 'stressed' at both time points and a group of randomly selected respondents from the remaining pool of participants, excluding those who were experienced 'high' work stress at either time point.

16. Detailed investigation of the cohort study verified subjective reports of stress using other validated measures (e.g. the Occupational Stress Indicator). Many of the associations between stress and health remained even after controlling for the possible confounding influence of negative affectivity. Subjective reports of mood on the day also showed a difference between the 'stressed' and non-stressed' groups.

17. Some differences were found between the groups with respect to clinical measures, haematological assays and objective performance indicators. There was no effect of work stress on cortisol levels although these were elevated in the high life stress group.

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APPENDIX 1:
RESULTS FROM PILOT STUDIES

DETAILS OF THE QUESTIONNAIRE

Table 1 shows the types of information that were collected in the questionnaire. Essentially the questionnaire could be divided into three sections. The first was intended to provide demographic information about the person and give a profile of lifestyle (health-related behaviours - smoking, alcohol consumption, diet, exercise). The second provided a detailed profile of characteristics of the person's job and the relationship between the job and life outside of work (e.g. the extent to which job responsibilities interfered with family life, and whether family life interfered with performance of the job). The final section assessed health. This was done by considering both recent health and medical history. Physical health was recorded using a series of checklists and mental health assessed using two established questionnaires (the GHQ and the HAD). Use of prescribed medication was recorded and, finally, a global rating of health obtained.

Table 122

Information collected in the questionnaire

Information Type	Examples
1. DEMOGRAPHICS	Age, gender, Social class, Marital status, Education
2. JOB DESCRIPTION	Employment status, Current position, Length of service, Hours per week
3. ABOUT THE WORKPLACE	Physical environment, Working hours
4. WORK CHARACTERISTICS	Demand, Discretion, Initiative, Position, Consistence and clarity, Involvement, Support, Satisfaction, Attitudes
5. FAMILY AND WORK	Life outside work and performance of job, Job responsibilities and interference with family life
6. HEALTH-RELATED BEHAVIOURS	Exercise, diet, smoking, Alcohol consumption.
7. RECENT HEALTH	Symptom checklist

Table 122 (contd)

Information Type	Examples
8. CHRONIC ILLNESS	Cardiovascular disease, cancer, diabetes, asthma
9. PRESCRIBED MEDICATION	Pain killers; sleeping pills; anti-depressants; medicines for indigestion; blood pressure tablets.
10. GLOBAL RATING OF HEALTH	Rating of health in general over the past 12 months (using a scale from very good to very bad)
11. ANXIETY AND DEPRESSION, GENERAL PSYCHOPATHOLOGY	Hospital Anxiety and Depression Scale General Health Questionnaire
12. ILLNESS CAUSED OR MADE WORSE BY WORK	Yes or No; If Yes, examples.
13. CHRONIC FATIGUE	Fatigue lasting over 6 months and reducing activities by 50% or more

RESULTS

Preliminary analyses of the questionnaires showed that there were few ambiguous questions and that there was little evidence of non-responding to individual items with the exception of the questions about salaries. Consistency of responding, as assessed by responses to items measuring similar constructs, also appeared to be high.

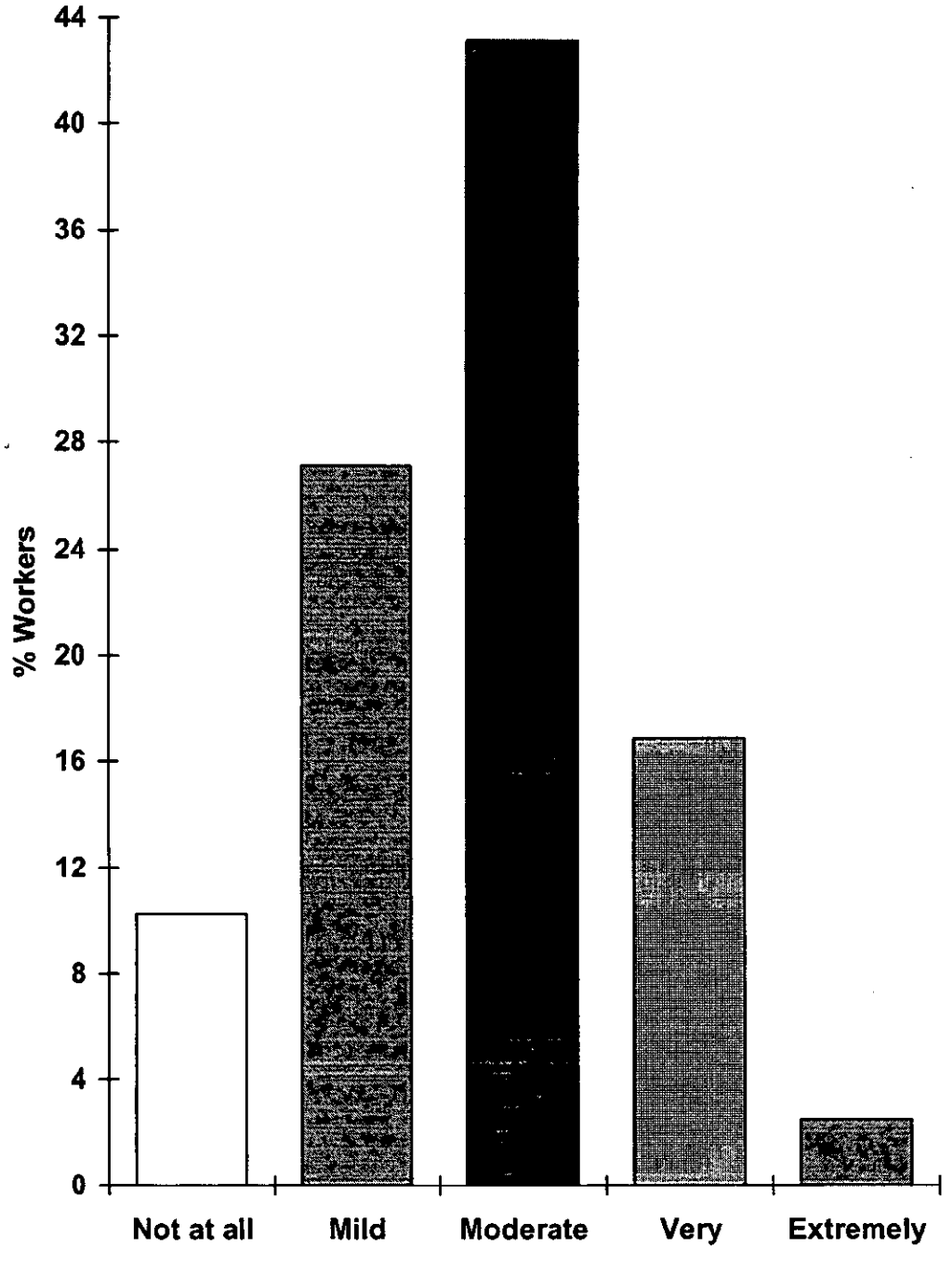
The participants were sub-divided into those who were currently working (57%), those who were retired (23%) and those who were unemployed, in full-time education or looking after the family/home (20%).

(a) STRESS AT WORK

Figure 1 shows the percentage of workers in the various stress at work categories. These results show that the number of workers feeling extremely stressed at work corresponds well with the estimate produced by the 1990 Labour Force Survey. However, a much higher percentage report that they are very stressed, and if one takes moderate stress and above as a cut-off point one finds that over half the sample fall into the high stress category.

Figure 1

Ratings of stress at work (from those currently working)



Further analyses were conducted comparing the mild-, moderate- and high stress categories. These revealed little evidence of differences between the groups for most of the demographic and lifestyle variables.

The work characteristics variables revealed highly significant differences between the groups and these are summarised in table 123.

Table 123

Work characteristics associated with stress

Working long hours
High exposure to noise
Having to work fast
High skill level required
Taking the initiative
Not being given enough information
Having to combine different things
High workload
Responsibility
Frequent interruptions
Overtime
Being treated unfairly
No respect from others
Inadequate support

All of the above were perceived as occurring more frequently by those who considered themselves to be stressed at work. Comparisons were made between those who were working and had low, moderate and high levels of perceived stress at work. Those with high levels of stress reported all of the above as being more frequent than did workers in the other groups.

Essentially, the results confirm the importance of perceptions of the physical work environment, working hours, job demand and discretion and social support at work in determining reported stress levels. The results also show that for the highly stressed worker problems at work interfere with life outside of the work place. The highly stressed groups perceived life in general to be more stressful,

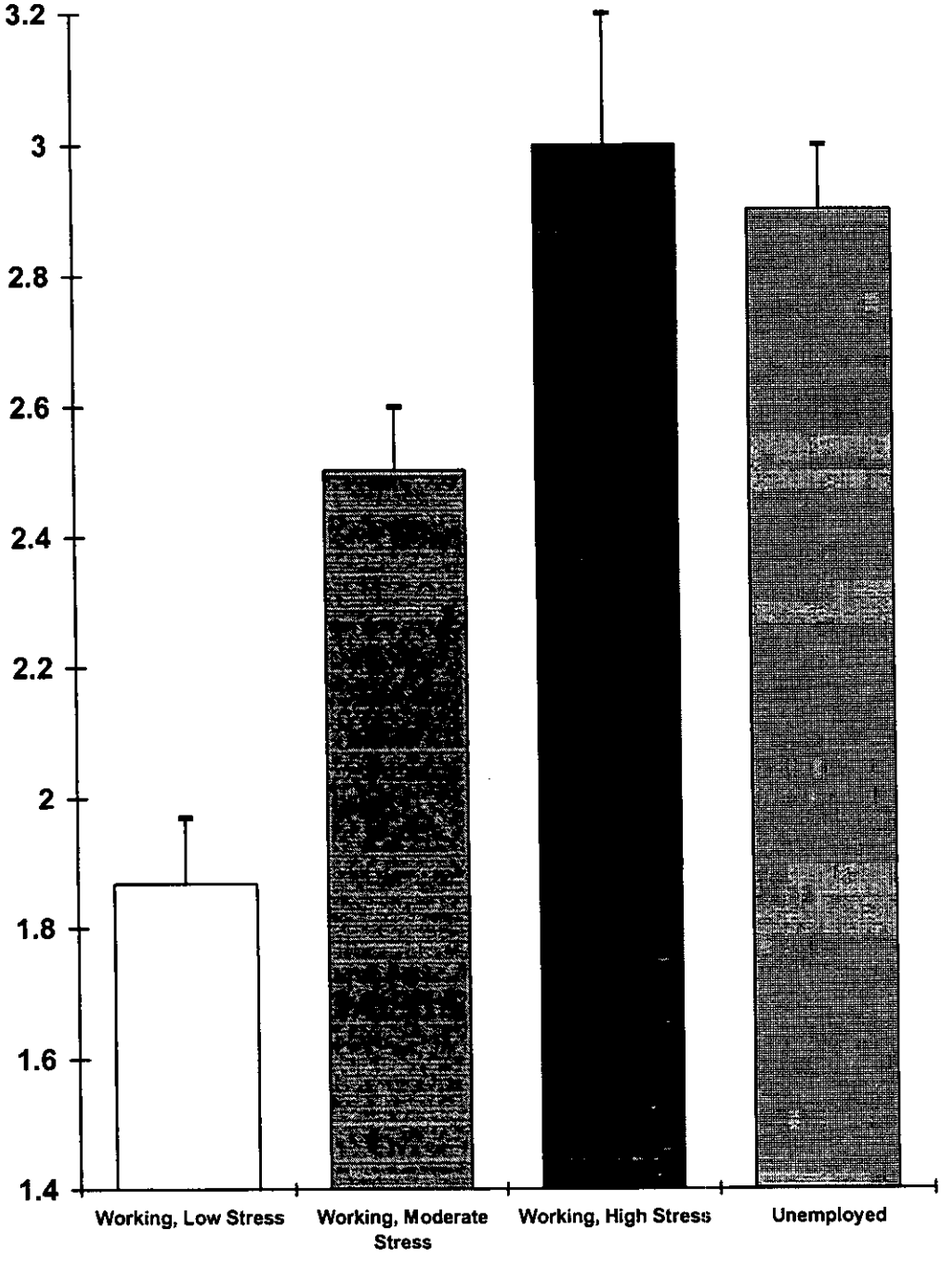
consumed more alcohol than they used to and were less likely to do vigorous exercise. High stress levels were also associated with more health problems especially increased diarrhoea, heartburn and indigestion, pains in the chest, toothache or trouble with gums and depression.

The above results confirm previous findings on the workplace correlates of stress, impact of stress at work on life outside of the workplace and associations between reports of stress and self-reported health outcomes. Further analyses compared the workers in the different stress groups with those who were unemployed. Unemployment is known to have a large impact on health and the results obtained here suggest that the problems associated with stress at work are of the same magnitude as those seen in unemployment. This point is illustrated in Figure 2 by considering the ratings of how stressful life in general was perceived.

Figure 2

Ratings of how stressful life in general is

(scores are the mean ratings, s.e.s shown as bars. Higher scores = greater stress)



One of the aims of the present research is to try to distinguish effects specifically due to stress at work from more general effects of perception of having a stressful life. These two measures are clearly associated as can be seen in table 124, although it is also possible to distinguish high work stress sub-groups with very different levels of stress outside of the workplace.

Table 124

Stress at work and perceptions of life in general as stressful

(percentages of workers in the various categories)

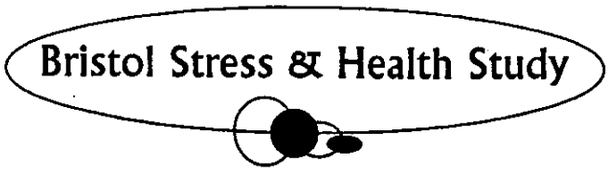
		Work stress		
		Low	Moderate	High
Life stress	Low	84%	50%	38%
	Moderate	16%	40%	29%
	High	0%	10%	33%
		100%	100%	100%

The above table shows the extent to which perceptions of different levels of stress at work were associated with subjective reports of the extent to which life in general was seen as stressful. Those who reported moderate to low levels of stress at work were unlikely to perceive life as being generally stressful. In contrast, about one third of those who reported high levels of stress at work also perceived life to be generally stressful.

Preliminary analyses of self-reported physical health and mental health suggest that reports of stress at work and stress outside of the workplace are both associated with perceived health and that these effects are additive. However, this conclusion, like many of the others based on this small sample, must be treated with caution at this stage.

Serial number

STRICTLY CONFIDENTIAL



Bristol Stress and Health Study

University of Bristol

The
Health and Safety Executive
1998

Contents

General Instructions

Thank you for taking time to fill in this questionnaire about health, stress, leisure activities and your work. It is very important that you fill this in even if you are not stressed, if you are working at the moment, or if you have retired. It will help us to find out about everyone's experiences.

We're trying to find out about many aspects of your life, from your health to your employment, from the stress that you feel, to the amount of sleep you normally get. The questionnaire takes about 30 minutes to fill in, so make a cup of tea/coffee, sit down, and answer the questions as accurately as you possibly can. The questionnaire may look quite long, but it is very straight forward.

Remember, we're interested in YOUR LIFE, and how you live it. Our conclusions depend on your accuracy.

Once you have filled the questionnaire in, please return it to us in the pre-paid FREEPOST envelope provided (no stamps are needed).

All your answers will be kept entirely confidential, and will only be used for this research project.

Please use BLOCK capitals throughout

Thank you very much for your help

Are you the person named on the envelope? Please tick YES or NO

Yes ☐ No ☐

If NO: Please stop filling in the questionnaire, and return in the FREEPOST envelope

If YES: Please continue with the questionnaire and return when completed

Contents

Your Health

First, we'd like to ask you a few questions about your current health, and illnesses or ailments which you may have had in the past.

1.1 Over the past 12 months, how would you say your health in general has been?

Very good	Good	Fair	Bad	Very Bad
☐	☐	☐	☐	☐

1.2 In general, how do you find your job?
If you are not working, please tick NOT APPLICABLE

Not at all stressful	Mildly stressful	Moderately stressful	Very stressful	Extremely stressful	Not applicable
☐	☐	☐	☐	☐	☐

1.3 How do you find life in general? Please tick one box only.

IF YOU ARE WORKING, consider how you find life in general outside work.

IF YOU ARE NOT WORKING, consider all aspects of your life.

Not at all stressful	Mildly stressful	Moderately stressful	Very stressful	Extremely stressful
☐	☐	☐	☐	☐

1.4 Have you ever been told by the doctor that you have, or have had any of the following? Please tick Yes or No for EACH of the categories in the following list.

	Yes	No
Angina	☐	☐
High cholesterol level	☐	☐
Diabetes	☐	☐
Stroke	☐	☐
Heart attack (coronary thrombosis, myocardial infarction)	☐	☐
High blood pressure	☐	☐
Nervous trouble or depression	☐	☐
Asthma	☐	☐
Emphysema	☐	☐
Bronchitis	☐	☐
Breast cancer	☐	☐
Other cancer	☐	☐

1.5 If you have had cancer which part of the body did it affect?

1.6 There are some kinds of health problems that keep recurring and some that people have all the time. In the last 12 months have you suffered from any of the following health problems?
Please tick Yes or No for EACH of the categories in the following list.

	Yes	No
Bronchitis	☐	☐
Arthritis or rheumatism	☐	☐
Sciatica, lumbago or recurring backache	☐	☐
Persistent skin trouble (e.g. eczema)	☐	☐
Asthma	☐	☐
Hay fever	☐	☐
Recurring stomach trouble or indigestion	☐	☐
Being constipated all or most of the time	☐	☐
Piles	☐	☐
Persistent foot trouble (e.g. bunions, ingrowing toenails)	☐	☐
Trouble with varicose veins	☐	☐
Nervous trouble or persistent depression	☐	☐
Persistent trouble with your gums or mouth	☐	☐
Any other recurring health problem. Please specify ↓	☐	☐

1.7 In the last 14 days have you taken any of these medicines prescribed by a doctor? If you are taking oral contraceptives (the pill) you do not need to write this down. Please tick Yes or No for EACH of the categories in the following list.

	Yes	No
Pain killers	☐	☐
Medicines for indigestion	☐	☐
Blood pressure tablets	☐	☐
Sleeping pills	☐	☐
Antidepressants	☐	☐
Laxatives (bowel opening medicine)	☐	☐
Other medicines prescribed by a doctor. Please specify ↓	☐	☐

1.8 Have you had any of the following symptoms in the last 14 days?
Please tick Yes or No for EACH of the categories in the following list.

	Yes	No
A cough, catarrh or phlegm	☐	☐
Diarrhoea	☐	☐
Heartburn, wind or indigestion	☐	☐
Shortness of breath	☐	☐
Dizziness or giddiness	☐	☐
Earache or discomfort in the ears	☐	☐
Swollen ankles	☐	☐
Nervy, tense or depressed	☐	☐
A cold or flu	☐	☐
A sore throat	☐	☐
Difficulty sleeping	☐	☐
Pains in the chest	☐	☐
Backache or pains in the back	☐	☐
Nausea or vomiting	☐	☐
Feeling tired for no apparent reason	☐	☐
Rashes, itches or other skin trouble	☐	☐
Blocked or runny nose	☐	☐
Headache	☐	☐
Wheeziness	☐	☐
Toothache or trouble with gums	☐	☐
Any other complaints in the last 14 days?	☐	☐

1.9 a) Have you ever had heart trouble suspected or confirmed? Yes ☐ No ☐

b) Have you ever had any pain or discomfort in your chest? Yes ☐ No ☐

If NO to both questions a) and b), go to question 2.1 on page 7.
If YES to either question a) or b), please continue with question c) onwards:

c) Do you get this pain or discomfort when you walk uphill or hurry? Yes ☐ No ☐

d) Do you get the pain or discomfort when you walk at an ordinary pace on the level? Yes ☐ No ☐

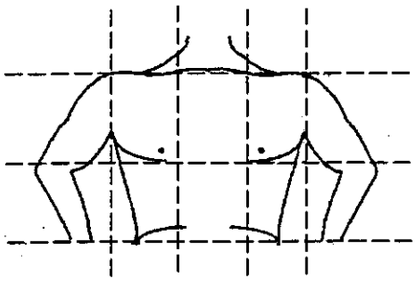
e) When you get pain or discomfort in your chest what do you do?
(Please tick <u>one</u> box only)
stop ☐
slow down ☐
continue at the same pace ☐

f) Does it go away when you stand still? Yes ☐ No ☐

g) How soon? 10 minutes or less ☐
More than 10 minutes ☐

h) Where do you get this pain? (Mark the place(s) with an X on the diagram below).

Left Right



i) Have you ever had either of the following operations to improve the circulation to your heart?

Coronary artery bypass surgery	Yes ☐	No ☐
Balloon angioplasty	Yes ☐	No ☐

Your General Well-Being

In this section, we'd like to find out about how you have been feeling lately. The questions are about your general well-being and feelings of stress.

2.1 Please read each item and then tick the box next to the reply which comes closest to how you have been feeling in the past week. Try to give your first reaction. This will probably be more accurate than spending a long time thinking about an answer.
Please answer all the questions, and tick only ONE BOX per question.

a) I feel tense or wound up
- Most of the time ☐
- A lot of the time ☐
- From time to time, occasionally ☐
- Not at all ☐

b) I feel as if I am slowed down
- Nearly all the time ☐
- Very often ☐
- Sometimes ☐
- Not at all ☐

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c) I still enjoy the things I used to enjoy
- Definitely as much ☐
- Not quite so much ☐
- Only a little ☐
- Hardly at all ☐

d) I get a sort of frightened feeling like "butterflies" in the stomach
- Not at all ☐
- Occasionally ☐
- Quite often ☐
- Very often ☐

e) I get a sort of frightened feeling as if something awful is about to happen
- Very definitely and quite badly ☐
- Yes, but not too badly ☐
- A little, but it doesn't worry me ☐
- Not at all ☐

f) I have lost interest in my appearance
- Definitely ☐
- I don't take quite as much care ☐
- I may not take quite as much care ☐
- I take just as much care as ever ☐

g) I can laugh and see the funny side of things
- As much as I always could ☐
- Not quite so much now ☐
- Definitely not so much now ☐
- Not at all ☐

h) I feel restless as if I have to be on the move
- Very much indeed ☐
- Quite a lot ☐
- Not very much ☐
- Not at all ☐

i) Worrying thoughts go through my head
- A great deal of the time ☐
- A lot of the time ☐
- From time to time but not too often ☐
- Only occasionally ☐

j) I look forward with enjoyment to things
- As much as I ever did ☐
- Rather less than I used to ☐
- Definitely less than I used to ☐
- Hardly at all ☐

k) I feel cheerful
- Not at all ☐
- Not often ☐
- Sometimes ☐
- Most of the time ☐

l) I get sudden feelings of panic
- Very often indeed ☐
- Quite often ☐
- Not very often ☐
- Not at all ☐

m) I can sit at ease and feel relaxed
- Definitely ☐
- Usually ☐
- Not often ☐
- Not at all ☐

n) I can enjoy a good book or radio or TV programme
- Often ☐
- Sometimes ☐
- Not often ☐
- Very seldom ☐

Contents

2.2 These question are about how you have been feeling in the last few months. Please try to answer ALL the questions.

Have you recently:

a) Been able to concentrate on whatever you're doing?	☐ Better than usual	☐ Same as usual	☐ Less than usual	☐ Much less than usual
b) Lost much sleep over worry?	☐ Not at all	☐ Same as usual	☐ Rather more than usual	☐ Much more than usual
c) Felt that you are playing a useful part in things?	☐ More so than usual	☐ Same as usual	☐ Less useful than usual	☐ Much less useful
d) Felt capable of making decisions about things?	☐ More so than usual	☐ Same as usual	☐ Less so than usual	☐ Much less capable
e) Felt constantly under strain?	☐ Not at all	☐ No more than usual	☐ Rather more than usual	☐ Much more than usual
f) Felt you couldn't overcome your difficulties?	☐ Not at all	☐ No more than usual	☐ Rather more than usual	☐ Much more than usual
g) Been able to enjoy your normal day-to-day activities?	☐ More so than usual	☐ Same as usual	☐ Less so than usual	☐ Much less than usual
h) Been able to face up to your problems?	☐ More so than usual	☐ Same as usual	☐ Less able than usual	☐ Much less able
i) Been feeling unhappy and depressed?	☐ Not at all	☐ No more than usual	☐ Rather more than usual	☐ Much more than usual
j) Been losing confidence in yourself?	☐ Not at all	☐ No more than usual	☐ Rather more than usual	☐ Much more than usual
k) Been thinking of yourself as a worthless person?	☐ Not at all	☐ No more than usual	☐ Rather more than usual	☐ Much more than usual
l) Been feeling reasonably happy, all things considered?	☐ More so than usual	☐ Same as usual	☐ Less so than usual	☐ Much less than usual

2.3 Have you ever suffered from chronic fatigue which has reduced your level of activity by 50% and lasted for at least 6 months? Yes ☐ No ☐

About your lifestyle

In this section, we're interested in finding out about how you live your life. In particular, we're interested in your diet, how much (or little) you drink or smoke, your sleeping habits, and your exercise. Like the rest of the sections of this questionnaire, please read through each section carefully and fill in the answers to the questions fairly quickly and completely. Thank you.

3.1 How often do you take part in sports OR activities that are:
(Please tick ONE box per category)

	3 times a week or more	once or twice a week	about once to three times a month	never/ hardly ever
a) Mildly energetic (e.g. walking, woodwork, weeding, hoeing, bicycle repair, playing darts, general housework)	☐	☐	☐	☐
b) Moderately energetic (e.g. scrubbing, polishing the car, chopping, dancing, golf, cycling, decorating, lawn mowing, leisurely swimming)	☐	☐	☐	☐
c) Vigorous (e.g. running, hard swimming, tennis, squash, digging, cycle racing, aerobics)	☐	☐	☐	☐

3.2 Please give the average number of hours per week you spend in such sports or activities.

a) Mildly energetic ..... hours

b) Moderately energetic ..... hours

c) Vigorous ..... hours

3.3 How many hours of sleep do you have on an average week night?

5 hours or less	6 hours	7 hours	8 hours	9 hours or more
☐	☐	☐	☐	☐

Next, we'd like to know a little about your eating and drinking habits. This section is mainly concerned with common food items like bread, milk and coffee.

3.4 Are you a vegetarian or a vegan? Please tick ONE box.

Vegetarian	Vegan	Neither
☐	☐	☐

3.5a) How often do you eat breakfast? Please tick ONE box.

never	less than once a week	once or twice a week	most days (3-6)	every day
☐	☐	☐	☐	☐

3.5b) How often do you eat breakfast CEREAL? Please tick ONE box.

never	less than once a week	once or twice a week	most days (3-6)	everyday
☐	☐	☐	☐	☐

3.6 What type of bread do you eat most frequently? Please tick ONE box.

White	Wholemeal	Granary or Wheatmeal	Other brown	Both brown and white	Other - Please specify
☐	☐	☐	☐	☐	..... ☐

3.7 What type of butter or margarine do you use most frequently? Please tick ONE box.

Butter	Hard margarine	Soft margarine	Margarines high in poly-unsaturates e.g. Flora	Low calorie spread e.g. Outline	Rarely use butter or margarine
☐	☐	☐	☐	☐	☐

3.8 How many cups of the following drinks do you have on average every day? If NONE, write 0.

	Number of cups per day
Instant coffee	.....
Filter coffee	.....
Ground coffee	.....
Decaffeinated coffee	.....
Other-Please specify ↓	.....

Leaf (loose) tea	.....
Bag tea	.....
Instant tea	.....
Decaffeinated tea	.....
Herbal or fruit tea	.....
Other-Please specify ↓	.....

3.9 What type of milk do you usually use? Please tick ONE box.

Do not use milk	Channel Islands whole milk (Gold Top)	Whole milk (silver/red top or sterilised)	Semi-skimmed milk	Skimmed milk	Other-please specify .....
☐	☐	☐	☐	☐	☐

The next few questions are about your smoking habits.

3.10 Do you smoke cigarettes now (i.e. NOT cigars/pipe)? Yes ☐ No ☐

If NO go to question 3.12

3.11 How many cigarettes do you smoke per day?

Manufactured ----------
Hand rolled ----------
Now go to question 3.15

3.12 If you are not a present cigarette smoker, did you smoke in the past? Yes ☐ No ☐
If NO go to question 3.15

3.13 How many cigarettes did you smoke per day?
Manufactured ----------
Hand rolled ----------

3.14 How old were you when you stopped smoking?.....years old

Drinking habits vary quite a lot. Some people drink almost every day, some people never, and some people only at week-ends. To try to get a picture of your usual drinking habits the following questions are divided into weekday (that is from Monday morning to Thursday night referred to as Week-days) and week-end drinking habits (that is from Friday morning to Sunday night referred to as Week-ends). Please answer the questions for the two time periods.
Remember, this includes drinking at home and in the pub.

3.15 On average how often do you drink during the week, that is Week-Days.
Please tick ONE BOX only.

Never	1-2 Days	3 Days	4 Days
☐	☐	☐	☐

3.16 On average how often do you drink at the Week-Ends.
Please tick ONE BOX only.

Never	1-2 Days	All 3 Days
☐	☐	☐

3.17 On an average set of WEEK-DAYS (this is the total number of drinks from Monday to Thursday) how many of the following drinks would you have?
Remember home measures for spirits etc. are equal to about 2 pub measures. Pub measures are given in the questions. If you drink BOTTLES OF BEER, count each bottle as half a pint of beer.

Drinks	Tick ONE BOX only for each type of drink					
PINTS: Beer, Lager, Stout, Cider	None ☐	1-2 ☐	3-5 ☐	6-8 ☐	9-11 ☐	12+ ☐
SINGLE MEASURES: Spirits or Liqueurs	None ☐	1-2 ☐	3-5 ☐	6-8 ☐	9-11 ☐	12+ ☐
GLASSES: Sherry or Martini	None ☐	1-2 ☐	3-5 ☐	6-8 ☐	9-11 ☐	12+ ☐
GLASSES: Wine	None ☐	1-2 ☐	3-5 ☐	6-8 ☐	9-11 ☐	12+ ☐

3.18 On an average set of WEEK-ENDS (this is the total number of drinks from Friday to Sunday) how many of the following drinks would you have?
Remember home measures for spirits etc. are equal to about 2 pub measures. Pub measures are given in the questions. If you drink BOTTLES OF BEER, count each bottle as half a pint of beer.

Drinks	Tick ONE BOX only for each type of drink					
PINTS: Beer, Lager, Stout, Cider	None ☐	1-2 ☐	3-5 ☐	6-8 ☐	9-11 ☐	12+ ☐
SINGLE MEASURES: Spirits or Liqueurs	None ☐	1-2 ☐	3-5 ☐	6-8 ☐	9-11 ☐	12+ ☐
GLASSES: Sherry or Martini	None ☐	1-2 ☐	3-5 ☐	6-8 ☐	9-11 ☐	12+ ☐
GLASSES: Wine	None ☐	1-2 ☐	3-5 ☐	6-8 ☐	9-11 ☐	12+ ☐

3.19 At what age did you start to drink alcohol regularly, that is more than once a month?

.....years old

3.20 If you no longer drink alcohol, how long have you been teetotal?

.....years

About your job

Now we'd like to ask you some questions about you and work.

4.1 Do you have a paid job at the moment? Please tick one box. Yes ☐ No ☐
If NO, please go to question 4.2.
If YES, please go to question 5.1.

4.2 How would you describe yourself? (Please tick ALL that apply)

Retired ☐
Unemployed and looking for work ☐
Unemployed and not looking for work ☐
Unemployed because of sickness/disability ☐
Doing voluntary work ☐
Student ☐
Looking after family/home ☐

Now please go to question 10.1 on page 25

These questions are about the paid job that you have at the moment.

5.1 a) What is your job title? (e.g coal miner, accounts clerk)

.....

b) What do your mainly do in your job?

.....

.....

c) Is the job full-time or part-time? (Full-time: 30 hours per week or more, Part-time: up to 30 hours per week) Please tick ONE box.

Full-time ☐
Part-time ☐

d) Is your job permanent, temporary, casual, or fixed contract? Please tick ONE box.

Permanent ☐
Temporary/casual ☐
Fixed contract ☐

Contents

e) Which one of the following best describes your current position at work?
Please tick one box.

Self-employed (25 + employees*)	☐	Manager (25 + employees*)	☐
Self-employed (less than 25 employees*)	☐	Manager (less than 25 employees*)	☐
Self-employed (no employees*)	☐	Supervisor	☐
		Employee	☐

(*Total number in Company, not just those of whom you are in charge).

f) Please give the date you started this job. ...../.....
month / year

g) In this job, how many hours per week do you work on average? .....

h) Do you have any other paid jobs? Yes ☐ No ☐

i) Are you a member of a trade union? Yes ☐ No ☐

Now we'd like to ask you about where you work.
For each question please tick ONE answer that best describes your work.

6.1	often	some-times	seldom	never/ almost never
a) Do you work at night?	☐	☐	☐	☐
b) Do you do shift work?	☐	☐	☐	☐
c) Do you have to work long or unsociable hours?	☐	☐	☐	☐
d) Do you have unpredictable working hours?	☐	☐	☐	☐
e) Does your job ever expose you to breathing fumes, dusts or other potentially harmful substances?	☐	☐	☐	☐
f) Does your job ever require you to handle or touch potentially harmful substances or materials?	☐	☐	☐	☐

g) Do you ever have work tasks that leave you with a ringing in your ears or a temporary feeling of deafness?	☐	☐	☐	☐
h) Do you work in an environment where the level of background noise disturbs your concentration?	☐	☐	☐	☐

Now we'd like to ask you about your work and the sorts of things you have to do.
For each question please tick the answer which best describes your job or the way you deal with problems at work.

7.1	often	some-times	seldom	never/ almost never	not applicable
a) Do you have to work very fast?	☐	☐	☐	☐	☐
b) Do you have to work very intensively?	☐	☐	☐	☐	☐
c) Do you have enough time to do everything?	☐	☐	☐	☐	☐
d) Are your tasks such that others can help you if you do not have enough time?	☐	☐	☐	☐	☐
e) Do you have the possibility of learning new things through your work?	☐	☐	☐	☐	☐
f) Does your work demand a high level of skill or expertise?	☐	☐	☐	☐	☐
g) Does your job require you to take the initiative?	☐	☐	☐	☐	☐
h) Do you have to do the same thing over and over again?	☐	☐	☐	☐	☐
i) Do you have a choice in deciding HOW you do your work?	☐	☐	☐	☐	☐
j) Do you have a choice in deciding WHAT you do at work?	☐	☐	☐	☐	☐

Contents

This section is about your position at work - how often do the following statements apply? Please tick ONE box only.

8.1	often	some-times	seldom	never/ almost never	not applicable
a) Others take decisions concerning my work.	☐	☐	☐	☐	☐
b) I have a great deal of say in decisions about my work.	☐	☐	☐	☐	☐
c) I have a say in my work speed.	☐	☐	☐	☐	☐
d) My working time can be flexible.	☐	☐	☐	☐	☐
e) I can decide when to take a break.	☐	☐	☐	☐	☐
f) I can take my holidays more or less when I wish.	☐	☐	☐	☐	☐
g) I have a say in choosing who I work with.	☐	☐	☐	☐	☐
h) I have a great deal of say in planning my work environment	☐	☐	☐	☐	☐

This section is about consistency and clarity at work - how often do the following statements apply? Please tick ONE box only.

8.2	often	some-times	seldom	never/ almost never	not applicable
a) Do different groups demand things from you that you think are hard to combine?	☐	☐	☐	☐	☐
b) Do you get sufficient information from line management (your superiors)?	☐	☐	☐	☐	☐
c) Do you get consistent information from line management (your superiors)?	☐	☐	☐	☐	☐

Contents

These questions are about your job involvement. Please tick ONE box only.

8.3	often	some-times	seldom	never/ almost never	not applicable
a) Does your job provide you with a variety of interesting things to do?	☐	☐	☐	☐	☐
b) Is your job boring?	☐	☐	☐	☐	☐

Now we would like to ask you about when you are having difficulties at work. Please tick ONE box only.

8.4	often	some-times	seldom	never/ almost never	not applicable
a) How often do you get help and support from your colleagues?	☐	☐	☐	☐	☐
b) How often are your colleagues willing to listen to your work related problems?	☐	☐	☐	☐	☐
c) How often do you get help and support from your immediate superior?	☐	☐	☐	☐	☐
d) How often is your immediate superior willing to listen to your problems?	☐	☐	☐	☐	☐

These questions are about your job in general. Please tick ONE box only.

8.5 How satisfied have you been with the following?	Very satisfied	Satisfied	Dis-satisfied	Very dis-satisfied	Not appli-cable
a) Your usual take home pay.	☐	☐	☐	☐	☐
b) Your work prospects.	☐	☐	☐	☐	☐
c) The people you work with.	☐	☐	☐	☐	☐
d) Physical working conditions.	☐	☐	☐	☐	☐
e) The way your section is run.	☐	☐	☐	☐	☐
f) The way your abilities are used.	☐	☐	☐	☐	☐
g) The interest and skill involved in your job.	☐	☐	☐	☐	☐

Do you agree or disagree with the following statements about how you feel about your work?

8.6

	Agree	Some-what agree	Some-what disagree	Disagree
a) If a task has to be done well I'd better take care of it myself.	☐	☐	☐	☐
b) I can get very upset when someone hinders me in my duties.	☐	☐	☐	☐
c) As soon as I get up in the morning I start thinking about work problems.	☐	☐	☐	☐
d) When I come home, I can easily relax and 'switch off' from work.	☐	☐	☐	☐
e) People close to me say I sacrifice myself too much for my job.	☐	☐	☐	☐
f) For me, family or private life comes first, then work.	☐	☐	☐	☐
g) Work rarely lets me go, it is still on my mind when I go to bed.	☐	☐	☐	☐
h) Every once in a while I like it when others hold me back from working.	☐	☐	☐	☐
i) If I postpone something that I was supposed to do today, I will have trouble sleeping at night.	☐	☐	☐	☐

In these next questions we would like to know whether or not you agree with some statements about your work.
If you DON'T agree with a statement tick the box marked No, as in this example. Then move on to the next statement.

EXAMPLE: Don't agree

			If you agree, to what extent are you distressed by it?			
			Not at all	Some-what	Rather	Very dis-tressed
a) I have constant time pressure due to a heavy workload.	No ☑	Yes ☐→	☐	☐	☐	☐

If you DO agree with a statement tick the box marked Yes AND tick one box to show how much it distresses you, as in this example. Then move on to the next statement.

EXAMPLE: Agree

			If you agree, to what extent are you distressed by it?			
			Not at all	Some-what	Rather	Very dis-tressed
a) I have constant time pressure due to a heavy workload.	No ☐	Yes ☑→	☐	☑	☐	☐

Do you agree with the following statements?

8.7

			If you agree, to what extent are you distressed by it?			
			Not at all	Some-what	Rather	Very dis-tressed
a) I have constant time pressure due to a heavy workload.	No ☐	Yes ☐→	☐	☐	☐	☐
b) I have many interruptions and disturbances in my job.	No ☐	Yes ☐→	☐	☐	☐	☐
c) I have a lot of responsibility in my job.	No ☐	Yes ☐→	☐	☐	☐	☐
d) I am often under pressure to work overtime.	No ☐	Yes ☐→	☐	☐	☐	☐
e) I have experienced or expect to experience an undesirable change in my work situation.	No ☐	Yes ☐→	☐	☐	☐	☐

f) My job promotion prospects are poor.	No ☐	Yes ☐→	☐	☐	☐	☐
g) My job security is poor.	No ☐	Yes ☐→	☐	☐	☐	☐
h) I am treated unfairly at work.	No ☐	Yes ☐→	☐	☐	☐	☐

In these next questions we would again like to know whether or not you agree with some statements about your work. This time, though, the order of 'Yes' and 'No' is changed. So if you DO agree with a statement tick the box marked 'Yes'. Then move on to the next statement. If you DON'T agree with a statement tick the box marked 'No' AND tick one box to show how much it distresses you. Then move on to the next statement.

Do you agree with the following statements?
(Please note the order of 'Yes', 'No' is changed)

8.8

			If you <u>disagree</u>, to what extent are you distressed by it?			
			Not at all	Some-what	Rather	Very dis-tressed
a) Considering all my efforts and achievements, my work prospects are adequate.	Yes ☐	No ☐→	☐	☐	☐	☐
b) I receive the respect I deserve from my superiors and colleagues.	Yes ☐	No ☐→	☐	☐	☐	☐
c) I experience adequate support in difficult situations.	Yes ☐	No ☐→	☐	☐	☐	☐
d) Considering all my efforts and achievements, I receive the respect and prestige I deserve at work.	Yes ☐	No ☐→	☐	☐	☐	☐

These questions are similar to those in question 8.8 above. This time we would like to know whether certain things about your work over the past year have affected your physical health or emotional well-being. Again the order of 'Yes' and 'No' is changed.
If you HAVE NOT been affected tick the box marked 'No'. Then move on to the next item.
If you HAVE been affected tick the box marked 'YES' AND tick one box to show how much it distressed you. Then move on to the next item.

Have you been affected physically or emotionally by the following?
(Please note the order of 'Yes', 'No' is changed)

8.9			If you agree, to what extent are you distressed by it?			
	No	Yes	Not at all	Some-what	Rather	Very dis-tressed
a) Racial abuse at work.	☐	☐ →	☐	☐	☐	☐
b) Sexual harassment at work.	☐	☐ →	☐	☐	☐	☐
c) Bullying at work.	☐	☐ →	☐	☐	☐	☐

8.10 Are you worried about losing your job? Please tick ONE box only.

Not at all worried	Mildly worried	Moderately worried	Very worried	Extremely worried
☐	☐	☐	☐	☐

8.11 Thinking about the past year, have you suffered from any illness that you think was caused, or made worse by work?

Yes ☐ No ☐

If Yes, please specify: .....

.....

.....

Now we would like to ask you about how work and family life affect each other.

9.1 Do your family life and family responsibilities interfere with your performance in your job in any of the following ways? Please tick ONE box only.

Would you say:	Not at all	To some extent	A great deal	Not applicable
a) Family matters reduce the time you can devote to your job.	☐	☐	☐	☐
b) Family worries or problems distract you from your work.	☐	☐	☐	☐
c) Family activities stop you getting the amount of sleep you need to do your job well.	☐	☐	☐	☐
d) Family obligations reduce the time you need to relax or be by yourself.	☐	☐	☐	☐

9.2 To what extent do your job responsibilities interfere with your family life? Please tick ONE box only.

Would you say:	Not at all	To some extent	A great deal	Not applicable
a) Your job reduces the amount of time you can spend with your family.	☐	☐	☐	☐
b) Problems at work make you irritable at home.	☐	☐	☐	☐
c) Your job involves a lot of travel away from home.	☐	☐	☐	☐
d) Your job takes so much energy you don't feel up to doing things that need attention at home.	☐	☐	☐	☐

9.3 How often do you see anyone from work socially out of work hours? (Not including casual lunchtime meetings). Please tick ONE box only.

Almost daily	About once a week	Once every few months	Never or almost never
☐	☐	☐	☐

About You

Now we would like to ask you some questions about your personal circumstances. All the answers you give in this questionnaire will be treated with the strictest confidence. Please try to answer all the questions.

10.1 What is your marital status? Please tick one only

- Married ☐
  - If married, go to question 10.2a
- Cohabiting ☐
  - If cohabiting, go to question 10.2c
- Single (never married) ☐
- Divorced or separated ☐
- Widowed ☐

If NOT married or cohabiting, go to question 10.3

10.2 If 'now married'

10.2a) Is this your first marriage? Yes ☐ No ☐

If YES, go to question 10.2c
If NO, go to question 10.2b

10.2b) How did your previous marriage end? Widowed ☐ Divorced ☐

10.2c) How old was your spouse/partner when he/she finished full-time education?

.....

10.2d) Now thinking just of your spouse's/partner's full-time education: what type of school or college did he/she last attend full-time? Please tick one box only.

- Elementary or secondary school ☐
- University/Polytechnic ☐
- Nursing School/Teaching Hospital ☐
- Some other type of college ☐
- Other (please specify) ☐

.....

10.3 Which of the following qualifications do YOU have?
Please tick ALL that apply

No academic qualifications	☐	Higher degree (MA/MSc,PhD)	☐
School certificate	☐	City and Guilds	☐
Matriculation	☐	National Diploma and Certificates (ONC,	
'O' Level/GCSE	☐	HND etc)	☐
'A'/'S' Level, SCE Higher	☐	Professional qualification (degree	
Still in full-time education	☐	equivalent/higher etc) (Please specify)↓	☐
BA/BSc	☐	.....	
		Other (please specify)↓	☐
		.....	

10.4 How would you describe yourself?

White	☐	☐	Black Caribbean
Black African	☐	☐	Black neither Caribbean or African
Indian	☐	☐	Pakistani
Bangladeshi	☐	☐	Chinese
		☐	None of these (Please specify).....

10.5a) Do you do any unpaid work? (For example conservation work, work in the community, political campaigning).

Yes ☐ No ☐ If NO go to question 10.6

10.5b) In an average week how many hours do you spend doing unpaid work?.....hours

10.5c) We are also interested in why you decided to do unpaid work. Please tick as many of these reasons as apply.

Contribution to the community	☐
Contribution to the environment	☐
Work experience	☐
Other	☐

Please specify.....

We are also interested in your father and his job. Please try to answer these questions as fully as possible from what you know, remember, or can find out.

Don't Know

10.6 a) How old was your father when he finished full-time education? ..... ☐

b) What is/was your father's job title? (e.g. coal miner, accounts clerk)

Don't Know

..... ☐

c) What does/did your father mainly do in his job?

Don't Know

..... ☐

.....

d) Which one of the following best describes the position your father has/had at work? Please tick ONE box only

Self-employed (25+ employees*)	☐	Manager (25+ employees*)	☐
Self-employed (less than 25 employees*)	☐	Manager (less than 25 employees*)	☐
Self-employed (no employees*)	☐	Supervisor	☐
Employee	☐	Don't know	☐

(*Total number in Company, not just those of whom he is/was in charge).

We would like to ask you a few questions about your social life and the people in your life who you feel close to and feel you can get support from.

11.1 Among your family and friends how many people are there who you can talk frankly to without having to watch what you say? Please tick ONE box only.

None	1-2	3-5	6-10	More than 10
☐	☐	☐	☐	☐

11.2 How many friends or acquaintances do you see once a month or more? Please tick ONE box only.

None	1-2	3-5	6-10	More than 10
☐	☐	☐	☐	☐

11.3a) Do you belong to any clubs or organisations?

Yes ☐ No ☐ If NO, go to question 12.1a

11.3b) Taking all the clubs or organisations together, how often do you attend?

Almost daily	About once a week	About once a month	Once every few months	Never or almost never
☐	☐	☐	☐	☐

About your household

Now we would like to ask some general questions about your income and the income for your whole household. We have included these questions so that we can see how similar people in Bristol are to people in the rest of the country. Please try to answer all the questions. All your answers, throughout this questionnaire, will be treated with the strictest confidence.

12.1a) Does anyone live in your household besides you? Yes ☐ No ☐ If NO go to question 12.2a

12.1b) Who lives in your household besides you? Please answer all parts

	Yes	No
Husband/wife or partner	☐	☐
Your mother	☐	☐
Your father	☐	☐
Your mother-in-law	☐	☐
Your father-in-law	☐	☐

	Number
Children under 5 if none write 0	.....
Children aged 5-15 if none write 0	.....
Children over 15 if none write 0	.....
Any other people if none write 0	.....

12.2a) Do you normally have access to a car or van for your personal use? Yes ☐ No ☐

If NO, go to question 12.3a

12.2b) Do you personally own the car or van? Yes ☐ No ☐

12.3a) Please tick one box to describe your housing:

Own with no mortgage	☐
Own with a mortgage	☐
Privately rented unfurnished	☐
Privately rented furnished	☐
Rented from local authority	☐
Rented from housing association	☐
Retirement/sheltered housing	☐
Living with parents	☐
Other	☐

(Please specify).....

12.3b) Please count the number of rooms your household has for it's own use.

Do not count:	Small kitchens under 2 metres (6 feet 6 inches) wide
	Bathrooms
	Toilets
Do count:	Living rooms
	Bedrooms
	Kitchens larger than 2 metres (6 feet 6 inches) wide
	All other rooms
Total room count is	☐

12.4a) What is total current yearly amount you receive from your wage, pension, benefit allowance or annual salary (before tax is deducted)? Please indicate one category.

less than £2,500	☐	£2,500-£4,999	☐	£5,000-£9,999	☐
£10,000-£15,999	☐	£16,000-£19,999	☐	£20,000-£24,999	☐
£25,000-£29,999	☐	£30,000-£39,999	☐	£40,000-£49,999	☐
£50,000 or more	☐				

12.4b) How many people (including yourself) contributed to your household finances with income from any source (any source includes; wages or salary from work, money from a second job or odd jobs, income from savings or investments, rent or property, pension, benefits and/or maintenance etc) over the last 12 months?

.....

12.4c) What total income (including your own) has your household received in the last 12 months from the sources in question 12.4b?

less than £999	☐	£1,000-£2,999	☐	£3,000-£4,999	☐	£5,000-£7,999	☐
£8,000-£9,999	☐	£10,000-£19,999	☐	£20,000-£39,999	☐	£40,000-£59,999	☐
£60,000-£99,999	☐	£100,000-£199,999	☐	more than £200,000	☐		

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12.4d) Thinking of the next 10 years, how financially secure do you feel?

Secure	Fairly secure	Fairly insecure	Insecure
☐	☐	☐	☐

13.1 Did you experience any of the following circumstances during your childhood (that is up until you were 16)? Please tick whether any of the following statements are true.

Your family/household had continuing financial problems	Yes ☐	No ☐
Your family/household did not have an inside toilet	Yes ☐	No ☐
Your family/household did not own a car	Yes ☐	No ☐

13.2a) Have you ever played the National Lottery, or bought a National Lottery scratch card?

Yes ☐ No ☐ If No please go to question 14.1

13.2b) How often do you play the National Lottery? Please tick ONE box only.

At least once a week	☐
Less than once a week but at least once a month	☐
Less than once a month but sometimes	☐
Less than 5 times in total	☐

13.2c) On average, how much do you spend on the lottery, scratch cards etc each week?

£.....

General Background Information

This personal identification section is included to check that the name and address we have for you are correct. Please remember that all information in this questionnaire will be treated with the strictest confidence.

14.1 Title (Mr, Mrs, Miss etc) .....

14.2 Forenames in full .....

14.3 Surname .....

14.4 Address .....

.....

14.5 Postcode: | | | | | | | |

14.6 Your phone numbers - Daytime .....

Evening .....

14.7 Are you male or female? Please put M or F in the box | |

14.8 How old are you? | |

14.9 What is your date of birth? .....

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We may need to obtain a few details from your family doctor or hospital records. In order to do this we need your permission. All information will be treated with the strictest confidence.

Do you give your permission? Yes ☐ No ☐

If Yes please sign here.....Date.....

GP's name.....

Address.....

.....

If you know your National Health Service* number please write it below.

.....

* This is on your National Health Service card. It is NOT the same as your National Insurance number.

Within the National Health Service, there is a central register of all births, deaths and cancer registrations. The information relating to you may be given to us, but ONLY with your permission. It would be held by us in the strictest confidence and only used for this study.

Do you give your permission? Yes ☐ No ☐

If Yes please sign here.....Date.....

We may need to contact a small group of participants again.
If you do NOT want to be contacted, please tick the box here: ☐

Thank you for helping with this important study. If you have any comments please write them in the space provided on this page.

NOW Please return this questionnaire to us in the envelope provided
(no stamps are needed)

To: Stress & Health Study
Health Psychology Research Unit
FREEPOST (SWB607)
Clifton
Bristol
BS8 1ZZ

If you have any queries, you can call 0117 928 8670 and speak to a member of the Research Team who will be able to deal with your questions.

THANK YOU VERY MUCH FOR YOUR HELP

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STRICTLY CONFIDENTIAL

Bristol Stress and Health Study

Bristol Stress and Health Study

Part 2

University of Bristol

The Health and Safety Executive 1999

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General Instructions

When you filled in the original questionnarie about one year ago, you indicated that you would be willing to be contacted again to assist us in our research. This is why we have sent you this new questionnaire. Thank you for taking time to fill in the questionnaire. Your efforts are very much appreciated.

It is important that you fill this in even if you are not stressed, if you are not working at the moment, or if you have retired. It will help us to find out about everyone's experiences. Once again, we're trying to find out about many aspects of your life, from your health to your employment, from the stress that you feel, to the amount of sleep you normally get.

Remember, we're interested in YOUR LIFE, and how you live it. Our conclusions depend on your accuracy.

Once you have filled the questionnaire in, please return it to us in the pre-paid FREEPOST envelope provided **(no stamps are needed).**

All your answers will be kept **entirely confidential,** and will only be used for this research project.

Please use BLOCK capitals throughout

Thank you very much for your help

Are you the person named on the envelope? Please tick YES or NO

Yes ☐ No ☐

If NO: Please stop filling in the questionnaire, and return in the FREEPOST envelope

If YES: Please continue with the questionnaire and return when completed

Contents

Your Health

First, we'd like to ask you a few questions about your current health, and illnesses or ailments which you may have had in the past.

1.1 Over the past 12 months, how would you say your health in general has been?

Very good	Good	Fair	Bad	Very Bad
☐	☐	☐	☐	☐

1.2 In general, how do you find your job?
If you are not working, please tick NOT APPLICABLE

Not at all stressful	Mildly stressful	Moderately stressful	Very stressful	Extremely stressful	Not applicable
☐	☐	☐	☐	☐	☐

1.3 How do you find life in general? Please tick one box only.

IF YOU ARE WORKING, consider how you find life in general outside work.

IF YOU ARE NOT WORKING, consider all aspects of your life.

Not at all stressful	Mildly stressful	Moderately stressful	Very stressful	Extremely stressful
☐	☐	☐	☐	☐

1.4 Have you ever been told by the doctor that you have, or have had any of the following? Please tick Yes or No for EACH of the categories in the following list.

	Yes	No
Angina	☐	☐
High cholesterol level	☐	☐
Diabetes	☐	☐
Stroke	☐	☐
Heart attack (coronary thrombosis, myocardial infarction)	☐	☐
High blood pressure	☐	☐
Nervous trouble or depression	☐	☐
Asthma	☐	☐
Emphysema	☐	☐
Bronchitis	☐	☐
Breast cancer	☐	☐
Other cancer	☐	☐

Contents

1.5 If you have had cancer which part of the body did it affect?

_____

_____

_____

1.6 There are some kinds of health problems that keep recurring and some that people have all the time. In the last 12 months have you suffered from any of the following health problems?
Please tick Yes or No for EACH of the categories in the following list.

	Yes	No
Bronchitis	☐	☐
Arthritis or rheumatism	☐	☐
Sciatica, lumbago or recurring backache	☐	☐
Persistent skin trouble (e.g. eczema)	☐	☐
Asthma	☐	☐
Hay fever	☐	☐
Recurring stomach trouble or indigestion	☐	☐
Being constipated all or most of the time	☐	☐
Piles	☐	☐
Persistent foot trouble (e.g. bunions, ingrowing toenails)	☐	☐
Trouble with varicose veins	☐	☐
Nervous trouble or persistent depression	☐	☐
Persistent trouble with your gums or mouth	☐	☐
Any other recurring health problem. Please specify ↓	☐	☐

_____

1.7 In the last 14 days have you taken any of these medicines prescribed by a doctor? If you are taking oral contraceptives (the pill) you do not need to write this down. Please tick Yes or No for EACH of the categories in the following list.

	Yes	No
Pain killers	☐	☐
Medicines for indigestion	☐	☐
Blood pressure tablets	☐	☐
Sleeping pills	☐	☐
Antidepressants	☐	☐
Laxatives (bowel opening medicine)	☐	☐
Other medicines prescribed by a doctor. Please specify ↓	☐	☐

_____

1.8 Have you had any of the following symptoms in the last 14 days?
Please tick Yes or No for EACH of the categories in the following list.

	Yes	No
A cough, catarrh or phlegm	☐	☐
Diarrhoea	☐	☐
Heartburn, wind or indigestion	☐	☐
Shortness of breath	☐	☐
Dizziness or giddiness	☐	☐
Earache or discomfort in the ears	☐	☐
Swollen ankles	☐	☐
Nervy, tense or depressed	☐	☐
A cold or flu	☐	☐
A sore throat	☐	☐
Difficulty sleeping	☐	☐
Pains in the chest	☐	☐
Backache or pains in the back	☐	☐
Nausea or vomiting	☐	☐
Feeling tired for no apparent reason	☐	☐
Rashes, itches or other skin trouble	☐	☐
Blocked or runny nose	☐	☐
Headache	☐	☐
Wheeziness	☐	☐
Toothache or trouble with gums	☐	☐
Any other complaints in the last 14 days?	☐	☐

1.9 a) Have you ever had heart trouble suspected or confirmed? Yes ☐ No ☐

b) Have you ever had any pain or discomfort in your chest? Yes ☐ No ☐

If NO to both questions a) and b), go to question 1.10 on page 7.
If YES to either question a) or b), please continue with question c) onwards:

c) Do you get this pain or discomfort when you walk uphill or hurry? Yes ☐ No ☐

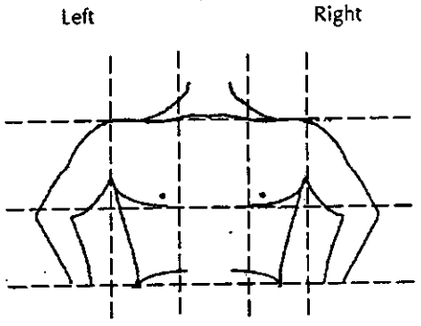
d) Do you get the pain or discomfort when you walk at an ordinary pace on the level? Yes ☐ No ☐

e) When you get pain or discomfort in your chest what do you do?
(Please tick one box only)
stop ☐
slow down ☐
continue at the same pace ☐

f) Does it go away when you stand still? Yes ☐ No ☐

g) How soon? 10 minutes or less ☐
More than 10 minutes ☐

h) Where do you get this pain? (Mark the place(s) with an X on the diagram below).



i) Have you ever had either of the following operations to improve the circulation to your heart?

Coronary artery bypass surgery	Yes ☐	No ☐
Balloon angioplasty	Yes ☐	No ☐

1.10 How many accidents requiring medical attention have you had in the last 12 months?

a) at work

None	1-2	3-4	5-6	More than 6	Not applicable
☐	☐	☐	☐	☐	☐

b) outside of work

None	1-2	3-4	5-6	More than 6
☐	☐	☐	☐	☐

1.11 In the last 12 months how frequently have you had minor injuries (e.g cuts and bruises) that did not require medical attention?

a) at work

Not at all	Rarely	Occasionally	Quite frequently	Very frequently	Not applicable
☐	☐	☐	☐	☐	☐

b) outside of work

Not at all	Rarely	Occasionally	Quite frequently	Very frequently
☐	☐	☐	☐	☐

1.12 Approximately how many days sick leave have you had in the last 12 months?

None	1-5	6-10	11-15	More than 15	Not applicable
☐	☐	☐	☐	☐	☐

1.13 Approximately how many times have you visited your GP in the last 12 months?

None	1-3	4-6	7-9	More than 9
☐	☐	☐	☐	☐

1.14 How many times have you visited hospital as an out-patient in the last 12 months?

None	1-3	4-6	7-9	More than 9
☐	☐	☐	☐	☐

1.15 How many times have you been an in-patient in hospital in the last 12 months?

None	1-3	4-6	7-9	More than 9
☐	☐	☐	☐	☐

1.16 How frequently do you find that you have problems of memory (e.g. forgetting where you put things), attention (e.g. failures of concentration), or action (e.g. doing the wrong thing)?

a) at work

Not at all	Rarely	Occasionally	Quite frequently	Very frequently	Not applicable
☐	☐	☐	☐	☐	☐

b) outside of work

Not at all	Rarely	Occasionally	Quite frequently	Very frequently
☐	☐	☐	☐	☐

1.17 Do you find yourself easily annoyed by noise?

Not at all annoyed	Rarely annoyed	Somewhat annoyed	Rather annoyed	Extremely annoyed
☐	☐	☐	☐	☐

1.18 How frequently are you exposed to noise?

a) at work

Not at all	Rarely	Occasionally	Quite frequently	Very frequently	Not applicable
☐	☐	☐	☐	☐	☐

b) outside of work

Not at all	Rarely	Occasionally	Quite frequently	Very frequently
☐	☐	☐	☐	☐

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1.19 How freqently do you suffer from insomnia (not being able to sleep)?

Not at all	Rarely	Occasionally	Quite frequently	Very frequently
☐	☐	☐	☐	☐

1.20 Please indicate by a tick in the appropriate box in each of the following sections which description suits you best.

a) In general, I am usually tense or nervous
This describes me:

Exactly	To some extent	Not Very accurately	Not at all
☐	☐	☐	☐

b) There is a great amount of nervous strain connected with my daily activities
This describes my situation:

Exactly	To some extent	Not Very accurately	Not at all
☐	☐	☐	☐

c) At the end of the day I am completely exhausted
This describes me:

Exactly	To some extent	Not Very accurately	Not at all
☐	☐	☐	☐

d) My daily activities are extremely trying and stressful
This describes my activities:

Exactly	To some extent	Not Very accurately	Not at all
☐	☐	☐	☐

Your General Well-Being

In this section, we'd like to find out about how you have been feeling lately. The questions are about your general well-being and feelings of stress.

2.1 Please read each item and then tick the box next to the reply which comes closest to how you have been feeling in the past week. Try to give your first reaction. This will probably be more accurate than spending a long time thinking about an answer.
Please answer all the questions, and tick only ONE BOX per question.

a) I feel tense or wound up
- Most of the time ☐
- A lot of the time ☐
- From time to time, occasionally ☐
- Not at all ☐

b) I feel as if I am slowed down
- Nearly all the time ☐
- Very often ☐
- Sometimes ☐
- Not at all ☐

c) I still enjoy the things I used to enjoy
- Definitely as much ☐
- Not quite so much ☐
- Only a little ☐
- Hardly at all ☐

d) I get a sort of frightened feeling like "butterflies" in the stomach
- Not at all ☐
- Occasionally ☐
- Quite often ☐
- Very often ☐

e) I get a sort of frightened feeling as if something awful is about to happen
- Very definitely and quite badly ☐
- Yes, but not too badly ☐
- A little, but it doesn't worry me ☐
- Not at all ☐

f) I have lost interest in my appearance
- Definitely ☐
- I don't take quite as much care as I should ☐
- I may not take quite as much care ☐
- I take just as much care as ever ☐

g) I can laugh and see the funny side of things
- As much as I always could ☐
- Not quite so much now ☐
- Definitely not so much now ☐
- Not at all ☐

h) I feel restless as if I have to be on the move
- Very much indeed ☐
- Quite a lot ☐
- Not very much ☐
- Not at all ☐

i) Worrying thoughts go through my head
- A great deal of the time ☐
- A lot of the time ☐
- From time to time but not too often ☐
- Only occasionally ☐

j) I look forward with enjoyment to things
- As much as I ever did ☐
- Rather less than I used to ☐
- Definitely less than I used to ☐
- Hardly at all ☐

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k) I feel cheerful

- ☐ Not at all
- ☐ Not often
- ☐ Sometimes
- ☐ Most of the time

l) I get sudden feelings of panic

- ☐ Very often indeed
- ☐ Quite often
- ☐ Not very often
- ☐ Not at all

m) I can sit at ease and feel relaxed

- ☐ Definitely
- ☐ Usually
- ☐ Not often
- ☐ Not at all

n) I can enjoy a good book or radio or TV programme

- ☐ Often
- ☐ Sometimes
- ☐ Not often
- ☐ Very seldom

2.2 These question are about how you have been feeling in the last few months. Please try to answer ALL the questions.

Have you recently:

a) Been able to concentrate on whatever you're doing?	☐ Better than usual	☐ Same as usual	☐ Less than usual	☐ Much less than usual
b) Lost much sleep over worry?	☐ Not at all	☐ Same as usual	☐ Rather more than usual	☐ Much more than usual
c) Felt that you are playing a useful part in things?	☐ More so than usual	☐ Same as usual	☐ Less useful than usual	☐ Much less useful
d) Felt capable of making decisions about things?	☐ More so than usual	☐ Same as usual	☐ Less so than usual	☐ Much less capable
e) Felt constantly under strain?	☐ Not at all	☐ No more than usual	☐ Rather more than usual	☐ Much more than usual
f) Felt you couldn't overcome your difficulties?	☐ Not at all	☐ No more than usual	☐ Rather more than usual	☐ Much more than usual
g) Been able to enjoy your normal day-to-day activities?	☐ More so than usual	☐ Same as usual	☐ Less so than usual	☐ Much less than usual
h) Been able to face up to your problems?	☐ More so than usual	☐ Same as usual	☐ Less able than usual	☐ Much less able

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i) Been feeling unhappy and depressed?	☐ Not at all	☐ No more than usual	☐ Rather more than usual	☐ Much more than usual
j) Been losing confidence in yourself?	☐ Not at all	☐ No more than usual	☐ Rather more than usual	☐ Much more than usual
k) Been thinking of yourself as a worthless person?	☐ Not at all	☐ No more than usual	☐ Rather more than usual	☐ Much more than usual
l) Been feeling reasonably happy, all things considered?	☐ More so than usual	☐ Same as usual	☐ Less so than usual	☐ Much less than usual

2.3 Have you ever suffered from chronic fatigue which has reduced your level of activity by 50% and lasted for at least 6 months? Yes ☐ No ☐

If YES, please answer the following questions;
If No, please continue with question 3.1 onwards.

2.4 a) How long ago did your chronic fatigue start _____ Years _____ Months ago

b) When did you recover from it (if still present put March 1999)? _____

c) What event or events led to the fatigue?

_____

_____

d) What factors made the fatigue worse?

_____

_____

e) What factors led to a reduction in your fatigue?

_____

_____

f) If you are currently suffering from chronic fatique how would you describe your condition?

Worse than at any stage	Bad	Recovering with relapses	Nearly recovered
☐	☐	☐	☐

g) Have you had any treatment for your fatigue? If so, describe it below.

_____

_____

h) Was the treatment successful?

Yes	No
☐	☐

i) What impact did your job have on your fatigue?

Made it worse	No effect
☐	☐

j) What impact did your fatigue have on your ability to work?

Impaired work	No effect
☐	☐

k) Would you be willing to fill in a more detailed questionnaire about your fatigue?

Yes	No
☐	☐

About your lifestyle

In this section, we're interested in finding out about how you live your life. In particular, we're interested in your diet, how much (or little) you drink or smoke, your sleeping habits, and your exercise. Like the rest of the sections of this questionnaire, please read through each section carefully and fill in the answers to the questions fairly quickly and completely. Thank you.

3.1 How often do you take part in sports OR activities that are:
(Please tick ONE box per category)

	3 times a week or more	once or twice a week	about once to three times a month	never/ hardly ever
a) Mildly energetic (e.g. walking, woodwork, weeding, hoeing, bicycle repair, playing darts, general housework)	☐	☐	☐	☐
b) Moderately energetic (e.g. scrubbing, polishing the car, chopping, dancing, golf, cycling, decorating, lawn mowing, leisurely swimming)	☐	☐	☐	☐
c) Vigorous (e.g. running, hard swimming, tennis, squash, digging, cycle racing, aerobics)	☐	☐	☐	☐

3.2 Please give the average number of hours per week you spend in such sports or activities.

a) Mildly energetic ..... hours

b) Moderately energetic ..... hours

c) Vigorous ..... hours

3.3 How many hours of sleep do you have on an average week night?

5 hours or less	6 hours	7 hours	8 hours	9 hours or more
☐	☐	☐	☐	☐

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Next, we'd like to know a little about your eating and drinking habits. This section is mainly concerned with common food items like bread, milk and coffee.

3.4 Are you a vegetarian or a vegan? Please tick ONE box.

Vegetarian	Vegan	Neither
☐	☐	☐

3.5a) How often do you eat breakfast? Please tick ONE box.

never	less than once a week	once or twice a week	most days (3-6)	everyday
☐	☐	☐	☐	☐

3.5b) How often do you eat breakfast CEREAL? Please tick ONE box.

never	less than once a week	once or twice a week	most days (3-6)	everyday
☐	☐	☐	☐	☐

3.6 What type of bread do you eat most frequently? Please tick ONE box.

White	Wholemeal	Granary or Wheatmeal	Other brown	Both brown and white	Other - Please specify
☐	☐	☐	☐	☐	..... ☐

3.7 What type of butter or margarine do you use most frequently? Please tick ONE box.

Butter	Hard margarine	Soft margarine	Margarines high in poly-unsaturates e.g. Flora	Low calorie spread e.g. Outline	Rarely use butter or margarine
☐	☐	☐	☐	☐	☐

3.8 How many cups of the following drinks do you have on average every day?
If NONE, write 0.

	Number of cups per day
Instant coffee	.....
Filter coffee	.....
Ground coffee	.....
Decaffeinated coffee	.....
Other-Please specify ↓	.....

Leaf (loose) tea	.....
Bag tea	.....
Instant tea	.....
Decaffeinated tea	.....
Herbal or fruit tea	.....
Other-Please specify ↓	.....

3.9 What type of milk do you usually use? Please tick ONE box.

Do not use milk	Channel Islands whole milk (Gold Top)	Whole milk (silver/red top or sterilised)	Semi-skimmed milk	Skimmed milk	Other-please specify .....
☐	☐	☐	☐	☐	☐

The next few questions are about your smoking habits.

3.10 Do you smoke cigarettes now (i.e. NOT cigars/pipe)? Yes ☐ No ☐

If NO go to question 3.12

3 11 How many cigarettes do you smoke per day?

Manufactured ----------
Hand rolled ----------
Now go to question 3.15

3.12 If you are not a present cigarette smoker, did you smoke in the past? Yes ☐ No ☐
If NO go to question 3.15

3.13 How many cigarettes did you smoke per day?
Manufactured ----------
Hand rolled ----------

3.14 How old were you when you stopped smoking?.....years old

Drinking habits vary quite a lot. Some people drink almost every day, some people never, and some people only at week-ends. To try to get a picture of your usual drinking habits the following questions are divided into weekday (that is from Monday morning to Thursday night referred to as Week-days) and week-end drinking habits (that is from Friday morning to Sunday night referred to as Week-ends). Please answer the questions for the two time periods.
Remember, this includes drinking at home and in the pub.

3.15 On average how often do you drink during the week, that is Week-days.
Please tick ONE BOX only.

Never	1-2 Days	3 Days	4 Days
☐	☐	☐	☐

3.16 On average how often do you drink at the Week-ends.
Please tick ONE BOX only.

Never	1-2 Days	All 3 Days
☐	☐	☐

3.17 On an average set of WEEK-DAYS (this is the total number of drinks from Monday to Thursday) how many of the following drinks would you have?
Remember home measures for spirits etc. are equal to about 2 pub measures. Pub measures are given in the questions. If you drink BOTTLES OF BEER, count each bottle as half a pint of beer.

Drinks	Tick ONE BOX only for each type of drink					
PINTS: Beer, Lager, Stout, Cider	None ☐	1-2 ☐	3-5 ☐	6-8 ☐	9-11 ☐	12+ ☐
SINGLE MEASURES: Spirits or Liqueurs	None ☐	1-2 ☐	3-5 ☐	6-8 ☐	9-11 ☐	12+ ☐
GLASSES: Sherry or Martini	None ☐	1-2 ☐	3-5 ☐	6-8 ☐	9-11 ☐	12+ ☐
GLASSES: Wine	None ☐	1-2 ☐	3-5 ☐	6-8 ☐	9-11 ☐	12+ ☐

3.18 On an average set of WEEK-ENDS (this is the total number of drinks from Friday to Sunday) how many of the following drinks would you have?
Remember home measures for spirits etc. are equal to about 2 pub measures. Pub measures are given in the questions. If you drink BOTTLES OF BEER, count each bottle as half a pint of beer.

Drinks	Tick ONE BOX only for each type of drink					
PINTS: Beer, Lager, Stout, Cider	None ☐	1-2 ☐	3-5 ☐	6-8 ☐	9-11 ☐	12+ ☐
SINGLE MEASURES: Spirits or Liqueurs	None ☐	1-2 ☐	3-5 ☐	6-8 ☐	9-11 ☐	12+ ☐
GLASSES: Sherry or Martini	None ☐	1-2 ☐	3-5 ☐	6-8 ☐	9-11 ☐	12+ ☐
GLASSES: Wine	None ☐	1-2 ☐	3-5 ☐	6-8 ☐	9-11 ☐	12+ ☐

3.19 At what age did you start to drink alcohol regularly, that is more than once a month?

.....years old

3.20 If you no longer drink alcohol, how long have you been teetotal?

.....years

About your job

Now we'd like to ask you some questions about you and work.

4.1 Do you have a paid job at the moment? Please tick one box. Yes ☐ No ☐
If NO, please go to question 4.2.
If YES, please go to question 5.1.

4.2 How would you describe yourself? (Please tick ALL that apply)

Retired	☐	Doing voluntary work	☐
Unemployed and looking for work	☐	Student	☐
Unemployed and not looking for work	☐	Looking after family/home	☐
Unemployed because of sickness/disability	☐		

Now please go to question 10.1 on page 30

These questions are about the paid job that you have at the moment.

5.1 a) What is your job title? (e.g coal miner, accounts clerk)

.....

b) What do you mainly do in your job?

.....

.....

c) Is the job full-time or part-time? (Full-time: 30 hours per week or more, Part-time: up to 30 hours per week) Please tick ONE box.

Full-time ☐
Part-time ☐

d) Is your job permanent, temporary, casual, or fixed contract? Please tick ONE box.

Permanent ☐
Temporary/casual ☐
Fixed contract ☐

Contents

e) Which one of the following best describes your current position at work?
Please tick one box.

Self-employed (25 + employees*)	☐	Manager (25 + employees*)	☐
Self-employed (less than 25 employees*)	☐	Manager (less than 25 employees*)	☐
Self-employed (no employees*)	☐	Supervisor	☐
		Employee	☐

(*Total number in Company, not just those of whom you are in charge).

f) Please give the date you started this job. ...../.....
month / year

g) In this job, how many hours per week do you work on average? .....hours

h) Do you have any other paid jobs? Yes ☐ No ☐

i) Are you a member of a trade union? Yes ☐ No ☐

Now we'd like to ask you about where you work.
For each question please tick ONE answer that best describes your work.

6.1	often	some-times	seldom	never/ almost never
a) Do you work at night?	☐	☐	☐	☐
b) Do you do shift work?	☐	☐	☐	☐
c) Do you have to work long or unsociable hours?	☐	☐	☐	☐
d) Do you have unpredictable working hours?	☐	☐	☐	☐
e) Does your job ever expose you to breathing fumes, dusts or other potentially harmful substances?	☐	☐	☐	☐
f) Does your job ever require you to handle or touch potentially harmful substances or materials?	☐	☐	☐	☐

	often	some-times	seldom	never/ almost never
g) Do you ever have work tasks that leave you with a ringing in your ears or a temporary feeling of deafness?	☐	☐	☐	☐
h) Do you work in an environment where the level of background noise disturbs your concentration?	☐	☐	☐	☐

7.1

	often	some-times	seldom	never/ almost never	not applicable
a) Do you have to work very fast?	☐	☐	☐	☐	☐
b) Do you have to work very intensively?	☐	☐	☐	☐	☐
c) Do you have enough time to do everything?	☐	☐	☐	☐	☐
d) Are your tasks such that others can help you if you do not have enough time?	☐	☐	☐	☐	☐
e) Do you have the possibility of learning new things through your work?	☐	☐	☐	☐	☐
f) Does your work demand a high level of skill or expertise?	☐	☐	☐	☐	☐
g) Does your job require you to take the initiative?	☐	☐	☐	☐	☐
h) Do you have to do the same thing over and over again?	☐	☐	☐	☐	☐
i) Do you have a choice in deciding HOW you do your work?	☐	☐	☐	☐	☐
j) Do you have a choice in deciding WHAT you do at work?	☐	☐	☐	☐	☐

Contents

This section is about your position at work - how often do the following statements apply? Please tick ONE box only.

8.1	often	some-times	seldom	never/ almost never	not applicable
a) Others take decisions concerning my work.	☐	☐	☐	☐	☐
b) I have a great deal of say in decisions about my work.	☐	☐	☐	☐	☐
c) I have a say in my work speed.	☐	☐	☐	☐	☐
d) My working time can be flexible.	☐	☐	☐	☐	☐
e) I can decide when to take a break.	☐	☐	☐	☐	☐
f) I can take my holidays more or less when I wish.	☐	☐	☐	☐	☐
g) I have a say in choosing who I work with.	☐	☐	☐	☐	☐
h) I have a great deal of say in planning my work environment	☐	☐	☐	☐	☐

This section is about consistency and clarity at work - how often do the following statements apply? Please tick ONE box only.

8.2	often	some-times	seldom	never/ almost never	not applicable
a) Do different groups demand things from you that you think are hard to combine?	☐	☐	☐	☐	☐
b) Do you get sufficient information from line management (your superiors)?	☐	☐	☐	☐	☐
c) Do you get consistent information from line management (your superiors)?	☐	☐	☐	☐	☐

These questions are about your job involvement. Please tick ONE box only.

8.3	often	some-times	seldom	never/ almost never	not applicable
a) Does your job provide you with a variety of interesting things to do?	☐	☐	☐	☐	☐
b) Is your job boring?	☐	☐	☐	☐	☐

Now we would like to ask you about when you are having difficulties at work. Please tick ONE box only.

8.4	often	some-times	seldom	never/ almost never	not applicable
a) How often do you get help and support from your colleagues?	☐	☐	☐	☐	☐
b) How often are your colleagues willing to listen to your work related problems?	☐	☐	☐	☐	☐
c) How often do you get help and support from your immediate superior?	☐	☐	☐	☐	☐
d) How often is your immediate superior willing to listen to your problems?	☐	☐	☐	☐	☐

These questions are about your job in general. Please tick ONE box only.

8.5 How satisfied have you been with the following?	Very satisfied	Satisfied	Dis-satisfied	Very dis-satisfied	Not appli-cable
a) Your usual take home pay.	☐	☐	☐	☐	☐
b) Your work prospects.	☐	☐	☐	☐	☐
c) The people you work with.	☐	☐	☐	☐	☐
d) Physical working conditions.	☐	☐	☐	☐	☐
e) The way your section is run.	☐	☐	☐	☐	☐
f) The way your abilities are used.	☐	☐	☐	☐	☐
g) The interest and skill involved in your job.	☐	☐	☐	☐	☐

Do you agree or disagree with the following statements about how you feel about your work?

8.6	Agree	Some-what agree	Some-what disagree	Disagree
a) If a task has to be done well I'd better take care of it myself.	☐	☐	☐	☐
b) I can get very upset when someone hinders me in my duties.	☐	☐	☐	☐
c) As soon as I get up in the morning I start thinking about work problems.	☐	☐	☐	☐
d) When I come home, I can easily relax and 'switch off' from work.	☐	☐	☐	☐
e) People close to me say I sacrifice myself too much for my job.	☐	☐	☐	☐
f) For me, family or private life comes first, then work.	☐	☐	☐	☐
g) Work rarely lets me go, it is still on my mind when I go to bed.	☐	☐	☐	☐
h) Every once in a while I like it when others hold me back from working.	☐	☐	☐	☐
i) If I postpone something that I was supposed to do today, I will have trouble sleeping at night.	☐	☐	☐	☐

In these next questions we would like to know whether or not you agree with some statements about your work.
If you DON'T agree with a statement tick the box marked No, as in this example. Then move on to the next statement.

EXAMPLE: Don't agree

			If you agree, to what extent are you distressed by it?			
			Not at all	Some-what	Rather	Very dis-tressed
a) I have constant time pressure due to a heavy workload.	No ☑	Yes ☐→	☐	☐	☐	☐

If you DO agree with a statement tick the box marked Yes AND tick one box to show how much it distresses you, as in this example. Then move on to the next statement.

EXAMPLE: Agree

			If you agree, to what extent are you distressed by it?			
			Not at all	Some-what	Rather	Very dis-tressed
a) I have constant time pressure due to a heavy workload.	No ☐	Yes ☑→	☐	☑	☐	☐

Do you agree with the following statements?

8.7

			If you agree, to what extent are you distressed by it?			
			Not at all	Some-what	Rather	Very dis-tressed
a) I have constant time pressure due to a heavy workload.	No ☐	Yes ☐→	☐	☐	☐	☐
b) I have many interruptions and disturbances in my job.	No ☐	Yes ☐→	☐	☐	☐	☐
c) I have a lot of responsibility in my job.	No ☐	Yes ☐→	☐	☐	☐	☐
d) I am often under pressure to work overtime.	No ☐	Yes ☐→	☐	☐	☐	☐
e) I have experienced or expect to experience an undesirable change in my work situation.	No ☐	Yes ☐→	☐	☐	☐	☐

f) My job promotion prospects are poor.	No ☐	Yes ☐→	☐	☐	☐	☐
g) My job security is poor.	No ☐	Yes ☐→	☐	☐	☐	☐
h) I am treated unfairly at work.	No ☐	Yes ☐→	☐	☐	☐	☐

In these next questions we would again like to know whether or not you agree with some statements about your work. This time, though, the order of 'Yes' and 'No' is changed. So if you DO agree with a statement tick the box marked 'Yes'. Then move on to the next statement. If you DON'T agree with a statement tick the box marked 'No' AND tick one box to show how much it distresses you. Then move on to the next statement.

Do you agree with the following statements?
(Please note the order of 'Yes', 'No' is changed)

8.8

			If you <u>disagree</u> to what extent are you distressed by it?			
			Not at all	Some-what	Rather	Very dis-tressed
a) Considering all my efforts and achievements, my work prospects are adequate.	Yes ☐	No ☐→	☐	☐	☐	☐
b) I receive the respect I deserve from my superiors and colleagues.	Yes ☐	No ☐→	☐	☐	☐	☐
c) I experience adequate support in difficult situations.	Yes ☐	No ☐→	☐	☐	☐	☐
d) Considering all my efforts and achievements, I receive the respect and prestige I deserve at work.	Yes ☐	No ☐→	☐	☐	☐	☐

These questions are similar to those in question 8.8. This time we would like to know whether certain things about your work over the past year have affected your physical health or emotional well-being. Again the order of 'Yes' and 'No' is changed.
If you HAVE NOT been affected tick the box marked 'No'. Then move on to the next item.
If you HAVE been affected tick the box marked 'YES' AND tick one box to show how much it distressed you. Then move on to the next item.

Have you been affected physically or emotionally by the following?
(Please note the order of 'Yes', 'No' is changed)

8.9

			If you agree, to what extent are you distressed by it?			
			Not at all	Some-what	Rather	Very dis-tressed
a) Racial abuse at work.	No ☐	Yes ☐→	☐	☐	☐	☐
b) Sexual harassment at work.	No ☐	Yes ☐→	☐	☐	☐	☐
c) Bullying at work.	No ☐	Yes ☐→	☐	☐	☐	☐

8.10 Are you worried about losing your job? Please tick ONE box only.

Not at all worried	Mildly worried	Moderately worried	Very worried	Extremely worried
☐	☐	☐	☐	☐

8.11 Thinking about the past year, have you suffered from any illness that you think was caused, or made worse by work?

Yes ☐ No ☐

If Yes, please specify: .....

.....

.....

Now we would like to ask you about how work and family life affect each other.

9.1 Do your family life and family responsibilities interfere with your performance in your job in any of the following ways? Please tick ONE box only.

Would you say:	Not at all	To some extent	A great deal	Not applicable
a) Family matters reduce the time you can devote to your job.	☐	☐	☐	☐
b) Family worries or problems distract you from your work.	☐	☐	☐	☐
c) Family activities stop you getting the amount of sleep you need to do your job well.	☐	☐	☐	☐
d) Family obligations reduce the time you need to relax or be by yourself.	☐	☐	☐	☐

9.2 To what extent do your job responsibilities interfere with your family life? Please tick ONE box only.

Would you say:	Not at all	To some extent	A great deal	Not applicable
a) Your job reduces the amount of time you can spend with your family.	☐	☐	☐	☐
b) Problems at work make you irritable at home.	☐	☐	☐	☐
c) Your job involves a lot of travel away from home.	☐	☐	☐	☐
d) Your job takes so much energy you don't feel up to doing things that need attention at home.	☐	☐	☐	☐

9 3 How often do you see anyone from work socially out of work hours? (Not including casual lunchtime meetings). Please tick ONE box only.

Almost daily	About once a week	Once every few months	Never or almost never
☐	☐	☐	☐

9.4 How productive or efficient do you feel you are work?

Not at all productive	Rarely productive	Somewhat productive	Rather productive	Extremely productive
☐	☐	☐	☐	☐

About You

Now we would like to ask you some questions about your personal circumstances. All the answers you give in this questionnaire will be treated with the strictest confidence. Please try to answer all the questions.

10.1 What is your marital status?

Please tick one only

Married ☐
If married, go to question 10.2a
Cohabiting ☐
If cohabiting, go to question 10.2c
Single (never married) ☐
Divorced or separated ☐
Widowed ☐

If NOT married or cohabiting, go to question 10.3

10.2 If 'now married'

10.2a) Is this your first marriage? Yes ☐ No ☐

If YES, go to question 10.2c
If NO, go to question 10.2b

10.2b) How did your previous marriage end? Widowed ☐ Divorced ☐

10.2c) How old was your spouse/partner when he/she finished full time education?

.....years old

10.2d) Now thinking just of your spouse's/partner's full-time education: what type of school or college did he/she last attend full-time? Please tick one box only.

- ☐ Elementary or secondary school
- ☐ University/Polytechnic
- ☐ Nursing School/Teaching Hospital
- ☐ Some other type of college
- ☐ Other (please specify) ↓

.....

10.3 Which of the following qualifications do YOU have?
Please tick ALL that apply

- ☐ No academic qualifications
- ☐ School certificate
- ☐ Matriculation
- ☐ 'O' Level/GCSE
- ☐ 'A'/'S' Level, SCE Higher
- ☐ Still in full-time education
- ☐ BA/BSc
- ☐ Higher degree (MA/MSc,PhD)
- ☐ City and Guilds
- ☐ National Diploma and Certificates(ONC, HND etc)
- ☐ Professional qualification (degree equivalent/higher etc) (Please specify) ↓
  .....
- ☐ Other (please specify) ↓
  .....

10.5a) Do you do any unpaid work? (For example conservation work, work in the community, political campaigning).

Yes ☐ No ☐ If NO go to question 11.1

10.5b) In an average week how many hours do you spend doing unpaid work?.....hours

10.5c) We are also interested in why you decided to do unpaid work. Please tick as many of these reasons as apply.

- Contribution to the community ☐
- Contribution to the environment ☐
- Work experience ☐
- Other ☐

Please specify.....

11.1 Among your family and friends how many people are there who you can talk frankly to without having to watch what you say? Please tick ONE box only.

None	1-2	3-5	6-10	More than 10
☐	☐	☐	☐	☐

11.2 How many friends or acquaintances do you see once a month or more? Please tick ONE box only.

None	1-2	3-5	6-10	More than 10
☐	☐	☐	☐	☐

11.3a) Do you belong to any clubs or organisations?

☐ Yes ☐ No If NO, go to question 12.1a

11.3b) Taking all the clubs or organisations together, how often do you attend?

Almost daily	About once a week	About once a month	Once every few months	Never or almost never
☐	☐	☐	☐	☐

About your household

Now we would like to ask some general questions about your income and the income for your whole household. We have included these questions so that we can see how similar people in Bristol are to people in the rest of the country. Please try to answer all the questions. All your answers, throughout this questionnaire, will be treated with the strictest confidence.

12.1a) Does anyone live in your household besides you? Yes ☐ No ☐ If NO go to question 12.2a

12.1b) Who lives in your household besides you? Please answer all parts

	Yes	No
Husband/wife or partner	☐	☐
Your mother	☐	☐
Your father	☐	☐
Your mother-in-law	☐	☐
Your father-in-law	☐	☐

	Number
Children under 5 if none write 0	.....
Children aged 5-15 if none write 0	.....
Children over 15 if none write 0	.....
Any other people if none write 0	.....

12.2a) Do you normally have access to a car or van for your personal use? Yes ☐ No ☐
If NO, go to question 12.3a

12.2b) Do you personally own the car or van? Yes ☐ No ☐

12.3a) Please tick one box to describe your housing:

- Own with no mortgage ☐
- Own with a mortgage ☐
- Privately rented unfurnished ☐
- Privately rented furnished ☐
- Rented from local authority ☐
- Rented from housing association ☐
- Retirement/sheltered housing ☐
- Living with parents ☐
- Other ☐

(Please specify).....

12 3b) Please count the number of rooms your household has for it's own use.

Do not count:	Small kitchens under 2 metres (6 feet 6 inches) wide
	Bathrooms
	Toilets
Do count:	Living rooms
	Bedrooms
	Kitchens larger than 2 metres (6 feet 6 inches) wide
	All other rooms

Total room count is.....

12.4a) What is the total current yearly amount you receive from your wage, pension, benefit allowance or annual salary (before tax is deducted)? Please indicate one category.

less than £2,500	☐	£2,500-£4,999	☐	£5,000-£9,999	☐
£10,000-£15,999	☐	£16,000-£19,999	☐	£20,000-£24,999	☐
£25,000-£29,999	☐	£30,000-£39,999	☐	£40,000-£49,999	☐
£50,000 or more	☐				

12.4b) How many people (including yourself) contributed to your household finances with income from any source (any source includes; wages or salary from work, money from a second job or odd jobs, income from savings or investments, rent or property, pension, benefits and/or maintenance etc) over the last 12 months?

.....

12.4c) What total income (including your own) has your household received in the last 12 months from the sources in question 12.4b?

less than £999	☐	£1,000-£2,999	☐	£3,000-£4,999	☐	£5,000-£7,999	☐
£8,000-£9,999	☐	£10,000-£19,999	☐	£20,000-£39,999	☐	£40,000-£59,999	☐
£60,000-£99,999	☐	£100,000-£199,999	☐	more than £200,000	☐		

12.4d) Thinking of the next 10 years, how financially secure do you feel?

Secure	Fairly secure	Fairly insecure	Insecure
☐	☐	☐	☐

Changes over the last 12months

14.1 Over the past 12 months, how would you say your health in general has changed?

Much worse than 12 months ago	A little worse than 12 months ago	No change from 12 months ago	A little better than 12 months ago	Much better than 12 months ago
☐	☐	☐	☐	☐

14.2 In general, how have you found stress in your job change over the last 12 months?
If you are not working, please tick NOT APPLICABLE

Much less stressful than 12 months ago	A little less stressful than 12 months ago	No change from 12 months ago	A little more stressful than 12 months ago	Much more stressful than 12 months ago	Not applicable
☐	☐	☐	☐	☐	☐

14.3 How have you found stress in your life in general change over the last 12 months?

IF YOU ARE WORKING, consider how you have found life in general outside work.
IF YOU ARE NOT WORKING, consider all aspects of your life.

Much less stressful than 12 months ago	A little stressful than 12 months ago	No change from 12 months ago	A little more stressful than 12 months ago	Much more stressful than 12 months ago
☐	☐	☐	☐	☐

14.4 Thinking about your job status NOW and your job status 12 months ago, please complete the table below:

a) Please tick the box that applies to you:

	12 months ago
I had a job	☐
I did not have a job	☐

b)

	Now
I have a job	☐
I do not have a job	☐

c) Is the job you have the same as the job 12 months ago?

☐ Yes ☐ No

d) Do you wish to make any further comments about your present job status compared with 12 months ago? Please write any comments in the space below.

For example, you are working full time now, but you were working part-time 12 months ago, or the nature of your job has changed.

_____

_____

_____

14.5a) How much did you weigh when you were born?
If you do not know, please ask your parents or brothers/sisters if you have any and if they are still alive, or someone else who might know

Birthweight in pound and ounces _____ pounds _____ ounces

14.5b) How did you find out this information about your birthweight?

Mother	Father	Sister or Brother	Aunt or Uncle	Other
☐	☐	☐	☐	☐

General Background Information

Please remember that all the information in this questionnaire will be treated with the strictest confidence.

14.1 Title (Mr, Mrs, Miss etc) .....

14.2 Forenames in full .....

14.3 Surname .....

14.4 Address .....

.....

14.5 Postcode: .....

14.6 Your phone numbers - Daytime .....

Evening .....

14.7 Are you male or female? Please write M or F in the space provided .....

14.8 How old are you .....

14.9 What is your date of birth? .....

Now please turn over the page →

Contents

As part of this follow up phase of the Bristol Stress & Health Study we would like to try to find out about stress and health in more detail by asking people to do some further tasks. These questions are about which parts of the study you would like to take part in. Please answer each question.

1. Would you be willing to fill in more questionnaires? Yes / No

2. Would you be willing to visit the unit (we will pay ALL your travelling expenses) and carry out simple tasks to give us with some more details about you (for example, memory and attention tasks)?

   Yes / No

3. Would you be willing to visit the unit (we will pay ALL your travelling expenses) for some tests (such as, being weighed, and having your blood pressure measured), including giving a blood sample?

   Yes / No

If you answered YES to questions 2 OR 3, please indicate below when it would be best for you to come to our office. Please remember that we will pay ALL your travelling expenses.

	Please TICK the time (or times) which suit you best
Before 9am Monday to Friday	
Between 9am and 5pm Monday to Friday	
Between 5pm and 8pm Monday to Friday	
Between 8pm and 10pm Monday to Friday	
On Saturday or Sunday	

☐ ☐ ☐ ☐

1 2 3 4 (For Office use only)

Thank you for helping with this important study. If you have any comments please write them in the space provided on this page.

NOW Please return this questionnaire to us in the envelope provided
(no stamps are needed)

To: University of Bristol
Department of Psychology
Health Psychology Research Unit
8 Woodland Road
Bristol BS8 1TN

If you have any queries, you can call 0117 928 8669 and speak to Dr Wadsworth or Dr Johal who will be able to deal with your questions.

THANK YOU VERY MUCH FOR YOUR HELP

Contents

APPENDIX 3:
Results from the Main Study

Nature of employment

The following tables give descriptive information relating to the nature of the employment of those who were working at Times one and two.

Table 125

(a) *Working (paid employment) by gender*

	Time 1 Males	Time 2 Males	Time 1 Females	Time 2 Females	Time 1 Total	Time 2 Total
	N=3150	N=1327	N=3692	N=1688	N=6842	N=3015
Working	2016	816	2131	1075	4147	1891
	(64)	(62)	(58)	(64)	(60)	(63)
Not working	1134	511	1561	613	2695	1124
	(36)	(38)	(42)	(36)	(40)	(37)

(b) *Full-time / part-time by gender*

	Time 1 Males	Time 2 Males	Time 1 Females	Time 2 Females	Time 1 Total	Time 2 Total
	N=2005	N=817	N=2140	N=1074	N=4145	N=1891
Full-time	1844	745	1263	639	3104	1384
	(92)	(91)	(59)	(59)	(75)	(73)
Part-time	161	72	877	435	1038	507
	(8)	(9)	(41)	(41)	(25)	(27)

(c) *Permanent / temporary by gender*

	Time 1 Males	Time 2 Males	Time 1 Females	Time 2 Females	Time 1 Total	Time 2 Total
	N=1993	N=818	N=2127	N=1067	N=4120	N=1885
Permanent	1754	736	1830	932	3584	1668
	(88)	(90)	(86)	(87)	(87)	(88)
Temporary / casual	119	46	149	65	268	111
	(6)	(6)	(7)	(6)	(6)	(6)
Fixed term	119	36	149	70	268	106
	(6)	(4)	(7)	(7)	(7)	(6)

(d) *Category of work by gender*

	Time 1 Males	Time 2 Males	Time 1 Females	Time 2 Females	Time 1 Total	Time 2 Total
	N=1973	N=810	N=2097	N=1056	N=4034	N=1866
Self-employed:						
- with employees	118	49	63	25	202	74
	(6)	(6)	(3)	(2)	(5)	(4)
- no employees	178	73	105	61	282	134
	(9)	(9)	(5)	(6)	(7)	(7)
Manager:						
- 25+ employees	237	134	147	87	403	221
	(12)	(16)	(7)	(8)	(10)	(12)
- <25 employees	99	46	84	58	202	104
	(5)	(6)	(4)	(6)	(5)	(6)
Supervisor	256	93	231	104	444	197
	(13)	(12)	(11)	(10)	(11)	(11)
Employee	1065	415	1510	721	2541	1136
	(54)	(51)	(72)	(68)	(63)	(61)

(e) *Hours of work by gender*

	Time 1 Males	Time 2 Males	Time 1 Females	Time 2 Females	Time 1 Total	Time 2 Total
	N=1953	N=811	N=2081	N=1056	N=4034	N=1867
10 hours or less	39	11	125	58	161	69
	(2)	(1)	(6)	(6)	(4)	(4)
11-20 hours	78	32	520	213	605	245
	(4)	(4)	(25)	(20)	(15)	(13)
21-30 hours	59	36	333	173	403	209
	(3)	(4)	(16)	(16)	(10)	(11)
31-40 hours	(723	286	832	437	1573	723
	(37)	(35)	(40)	(41)	(39)	(39)
41-50 hours	703	299	271	134	968	433
	(36)	(37)	(13)	(13)	(24)	(23)
51-60 hours	273	101	62	28	323	129
	(14)	(13)	(3)	(3)	(8)	(7)
61-70 hours	78	32	21	9	81	41
	(4)	(4)	(1)	(1)	(2)	(2)
71+	39	14	2(<1)	4	4	18
	(2)	(2)		(<1)	(1)	(1)

The following tables make comparisons between the Household Survey and the current study with respect to certain work characteristics.

Table 126

(a) **Percent of current workers who were ever exposed to breathing fumes, dusts and other harmful substances in their job by age and sex (*Household Survey*) A**
Percent of those in paid employment often or sometimes (but not seldom) exposed to breathing fumes, dusts or other potentially harmful substances (*Stress and Health Study*) B (q6.1e)

		Age Group						
		16-24	25-34	35-44	45-54	55-59(f) /55-64(m)	60(f) /65(m)+	Mean
Men								
A	Yes (%)	46	43	47	46	44	27	45
B	Yes (%)	42	35	224 (41)	186 (39)	38	27	38
Women								
A	Yes (%)	17	18	18	23	17	17	19
B	Yes (%)	16	15	12	12	14	15	13
Total								
A	Yes (%)	31	32	32	35	35	22	33
B	Yes (%)	27	24	25	25	31	19	25

Table 126 (contd)

(b) **Percent of current workers who did not get enough help and support from people in charge when needed by age and sex (*Household Survey*) A**
Percent of those in paid employment who seldom or never got enough help and support from their immediate superior (*Stress and Health Study*) B (q8.4c)

		Age Group						
		16-24	25-34	35-44	45-54	55-59(f) /55-64(m)	60(f) /65(m)+	Mean
Men								
A	Yes (%)	10	22	25	20	18	19	20
B	Yes (%)	18	27	27	27	33	24	27
Women								
A	Yes (%)	19	27	23	17	13	11	21
B	Yes (%)	20	22	20	17	14	15	19
Total								
A	Yes (%)	14	24	24	19	16	15	20
B	Yes (%)	18	24	23	21	27	18	23

Table 126 (contd)

(c) **Percent of current workers who ever had to work very fast in their job by age and sex (*Household Survey*) A**
Percent of those in paid employment who often or sometimes had to work very fast (*Stress and Health Study*) B (q7.1a)

		Age Group						
		16-24	25-34	35-44	45-54	55-59(f) /55-64(m)	60(f) /65(m)+	Mean
Men								
A	Yes (%)	70	63	58	53	42	15	57
B	Yes (%)	84	88	86	87	76	58	84
Women								
A	Yes (%)	72	68	54	59	65	46	62
B	Yes (%)	88	90	87	86	80	79	87
Total								
A	Yes (%)	71	65	56	56	51	30	60
B	Yes (%)	87	89	86	86	77	71	86

Table 126 (contd)

(d) Percent of current workers who were ever required to handle or touch harmful substances or materials in their job by age and sex (*Household Survey*) A
Percent of those in paid employment whose job ever often or sometimes required them to handle or touch potentially harmful substances or materials (*Stress and Health Study*) B (q6.1f)

		Age Group						
		16-24	25-34	35-44	45-54	55-59(f) /55-64(m)	60(f) /65(m)+	Mean
Men								
A	Yes (%)	39	32	38	31	28	21	33
B	Yes (%)	42	35	41	39	38	27	38
Women								
A	Yes (%)	19	20	16	19	16	11	18
B	Yes (%)	16	15	12	12	14	15	13
Total								
A	Yes (%)	29	27	26	26	24	16	26
B	Yes (%)	27	24	19	25	31	19	25

Table 126 (contd)

(e) **Percent of current workers who were not able to choose or change the order of their tasks or method of working by age and sex (*Household Survey*) A**
Percent of those in paid employment who seldom or never had a choice in deciding how they did their work (*Stress and Health Study*) B (q7.1i)

		Age Group						
		16-24	25-34	35-44	45-54	55-59(f) /55-64(m)	60(f) /65(m)+	Mean
Men								
A	Yes (%)	48	28	29	39	30	40	34
B	Yes (%)	23	17	15	15	13	8	16
Women								
A	Yes (%)	38	31	26	33	34	24	32
B	Yes (%)	35	17	14	17	18	12	18
Total								
A	Yes (%)	43	29	27	36	32	32	33
B	Yes (%)	31	17	15	16	15	10	17

Table 126 (contd)

(f) **Percent of current workers who were ever involved in work tasks which left them with ringing in their ears or a temporary feeling of deafness by age and sex (*Household Survey*) A**
Percent of those in paid employment who were ever, often, or sometimes have work tasks that left them with a ringing in their ears or a temporary feeling of deafness (*Stress and Health Study*) B (q6.1g)

		Age Group						
		16-24	25-34	35-44	45-54	55-59(f) /55-64(m)	60(f) /65(m)+	Mean
Men								
A	Yes (%)	8	11	15	10	6	6	1
B	Yes (%)	9	11	11	14	10	8	11
Women								
A	Yes (%)	5	4	3	5	6	0	4
B	Yes (%)	6	2	2	2	3	2	3
Total								
A	Yes (%)	7	8	9	8	6	3	8
B	Yes (%)	7	6	6	8	8	4	7

Table 126 (contd)

(g) **Percent of current workers who ever had to repeat the same sequence of movements many times in their job by age and sex (*Household Survey*) A**
Percent of those in paid employment who often or sometimes had to do the same thing over and over again (*Stress and Health Study*) B (q7.1h)

		Age Group						
		16-24	25-34	35-44	45-54	55-59(f) /55-64(m)	60(f) /65(m)+	Mean
Men								
A	Yes (%)	74	65	56	66	58	54	64
B	Yes (%)	85	75	74	77	80	79	77
Women								
A	Yes (%)	82	67	60	65	64	65	67
B	Yes (%)	92	77	81	84	84	90	82
Total								
A	Yes (%)	78	66	58	66	60	60	65
B	Yes (%)	89	76	78	80	81	86	80

Table 126 (contd)

(h) Percent of current workers who felt they ever had too much work to do by age and sex (*Household Survey*) A
Percent of those in paid employment who seldom or never had enough time to do everything (*Stress and Health Study*) B (q7.1c)

		Age Group						
		16-24	25-34	35-44	45-54	55-59(f) /55-64(m)	60(f) /65(m)+	Mean
Men								
A Aug, Oct	Yes (%)	49, 49	63, 79	68, 73	61, 68	50, 63	6 19	59 67
B	Yes (%)	31	40	47	45	34	10	41
Women								
A Aug, Oct	Yes (%)	36, 61	66, 76	54, 67	66, 78	34, 54	39 56	54 70
B	Yes (%)	32	40	43	43	35	21	40
Total								
A Aug, Oct	Yes (%)	42, 55	65, 78	61, 70	63, 73	44, 60	27 32	57 68
B	Yes (%)	32	40	45	44	34	17	40

The above tables indicate broadly similar results from the Household Survey and the current study, which suggests that our population of those in employment were representative of the experience of workers more widely across the UK. The only exceptions are tables c g and h where it seems most likely that the apparent differences between the studies reflect the different ways in which the questions were phrased

Health Status

It was also possible to examine the health status of our respondents in relation to that of other populations. Both the Health Survey for England 1994, and the current study, included some of the same questions as shown in the tables below.

Table 127

Have you ever had:

(a) High blood pressure?

	Health Survey for England	Bristol Stress & Health Survey
Men	15.3	21.1
Women	10.9	22.7

(b) Angina?

	Health Survey for England	Bristol Stress & Health Survey
Men	4.3	6.8
Women	3.4	4.3

(c) Heart attack?

	Health Survey for England	Bristol Stress & Health Survey
Men	3.8	5.4
Women	1.7	2.3

(d) Stroke?

	Health Survey for England	Bristol Stress & Health Survey
Men	1.8	2.6
Women	1.6	2.0

(e) Diabetes?

	Health Survey for England	Bristol Stress & Health Survey
Men	2.9	4.4
Women	1.9	3.2

In all these tables the stress and health study (at Time one only) seems to show slightly higher frequencies of these conditions.

- Bristol Stress & Health Survey (last 12 months) 10 1% (men 8 5%, women 11.5%); though numbers reporting difficulty sleeping were similar to those in the Health and Lifestyle Survey:
- Proportion of people who have had difficulty sleeping
  Health and Lifestyle (last month) = 32.4% overall
  Bristol Sress & Health Survey (last 14 days) = 38.9% overall