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Employee engagement in the NHS

A secondary data analysis of the NHS Healthy Workforce and Britain's Healthiest Workplace surveys

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Preface

This technical report presents the findings of a study on employee engagement in the English National Health Service (NHS). It is based on a secondary analysis of RAND's 2016 NHS Healthy Workforce Survey, complemented by data collected on NHS trusts and health organisations in the 2016 Britain's Healthiest Workplace survey, and other official NHS data sources for 2016.

The report will be of interest to wider NHS institutions, the NHS workforce, policy-makers, and people interested in the field of health and well-being in the workplace.

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Abstract

This report examines some of the factors associated with employee engagement in the National Health Service (NHS). It further investigates whether there are associations between employee engagement and individual and organisational outcomes – such as rates of absenteeism or presenteeism – as well as a better quality of care and even better financial performance. In line with previous seminal research on employee engagement in the NHS, this study uses data from the NHS Healthy Workforce and Britain's Healthiest Workplace surveys and multivariate regression techniques to assess the associations between a measure of employee engagement and its determinants and outcomes.

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Background

This report aims to explore staff engagement in the English National Health Service (NHS), looking at the evidence on staff engagement, and how this may be linked to patient outcomes and organisational results. This report aims to make a contribution to the debate around the importance of improving employee engagement in the NHS. It examines some of the factors associated with employee engagement in the National Health Service (NHS) and further investigates whether there are associations between employee engagement and individual and organisational outcomes – such as rates of absenteeism or presenteeism – as well as a better quality of care and even better financial performance. This technical report represents the findings of the secondary analysis of the NHS Healthy Workforce and Britain's Healthiest Workplace surveys.

Research approach

This study uses multivariate regression techniques to assess the associations between employee engagement and its determinants as well as specific outcomes, such as levels of absenteeism or presenteeism, staff turnover, patient satisfaction and financial performance. The analysis presented in this report aims to be complementary to previous seminal work on staff engagement in the NHS (West & Dawson, 2012) that used the NHS Staff survey as the backbone of its empirical analysis. The analysis in this report is based on data from the NHS Healthy Workforce survey in 2016, combined with information from the 2016 Britain's Healthiest Workplace survey and other additional NHS data sources. The NHS Healthy Workforce Survey was conducted by RAND and collected responses from employers and employees using two surveys: the Organisational health assessment (OHA) and the Employee health assessment (EHA) respectively. Participating organisations returned the OHA, including general organisational characteristics such as the size of the organisation, perspectives on work culture and the work environment and information on the organisation's approach to health promotion and well-being interventions. The EHA captures the general health of employees, the interventions that employers offer and wider information on the work environment and culture. The Britain's Healthiest Workplace (BHW) study was broadly identical (90 per cent of the questions were identical) to the NHS Healthy Workforce survey, and collected data on additional NHS health organisations over a similar period. BHW also collects data on employers and their employees in other sectors across Great Britain.

Overall, data from 28 NHS organisations are included in the surveys (NHS Healthy Workforce Survey and BHW) and responses from over 9,000 employees are analysed in more detail. The added value of

using this data is that it includes a large number of variables – including information on the personal background of respondents, their health and well-being and lifestyle behaviour – as well as information at the organisational level about health and well-being and leadership engagement.

While the data has its strengths, it is important to note that while the participating organisations represent a diverse range of NHS organisations, generalisations of the findings to the wider NHS should only be made with some caution. The sample of participating organisations in the NHS Healthy Workforce survey and BHW was not intended to be representative of the entire NHS, although we find that the findings most likely could apply to the wider NHS. For instance, the participating health organisations have been either selected by NHS England or have self-selected to participate in the survey. Hence, they may not be fully representative among the overall population of health organisations. In addition, there was a varying response rate within organisations (with an average response rate of 8 percent). Nevertheless, the distribution of employees in the survey is very similar to the distribution across different subgroups in the NHS staff survey, which gives some confidence that the survey is broadly representative for some of the specific employee groups. In addition, the statistical analysis adjusts for many factors that are potentially correlated with sampling bias, which mitigates to a large extent the issue of sampling bias in the findings presented in this study.

Findings

Comparing the NHS to other sectors in the UK, the findings suggest that employee engagement in the NHS is lower than in some UK sectors (e.g. media and telecommunications, professional services) but better than in others (e.g. financial services or logistics). Our findings suggest that staff engagement in the NHS in many ways is similar to other large employers with a similar demographic composition among their workforce. A summary of the most relevant factors positively or negatively affecting engagement is reported in Table ES.1.

The findings suggest that a number of demographic factors in our sample, including gender and age, are associated with levels of engagement (as measured by the engagement indicator used in this research). For instance female employees tend to report higher levels of engagement, whereas engagement decreases with age but plateaus in the mid-fifties, and then increases again (however, it does not reach the levels seen in early age until retirement age).

In addition, employees working in different NHS occupations report different levels of engagement. For instance, among employees in administration and general management in our sample, levels of engagement tend to be lower on average. In contrast, employees in medical and dental occupations, and nursing and healthcare assistants tend to report higher levels of engagement. This may be because frontline personnel may see their role more as a calling than support staff and managers. Organisational tenure seems to matter as well. Interestingly, engagement in our research tends to be highest in the first two years and then steadily declines until about 12 years of tenure. Then, engagement seems to rise again. This may suggest a selection effect, as those employees staying longest may be the most engaged, and most identify themselves with the organisation.

Furthermore, the work environment matters. The empirical findings suggest that employees who have flexible hours and can work from home once in a while report higher levels of engagement. This speaks to

understanding the demand for flexible working among NHS staff and taking more proactive steps to accommodate some of these demands. This may help with managing home-life balance, dealing with working antisocial hours, and indeed managing other caring responsibilities. Also, employees who report high levels of workplace stress, a lack of control, and are not clear about their role, have lower levels of engagement. Employees who report being bullied or have a lack of peer support in the workplace tend to be less engaged on average. Finally, offering certain health and well-being interventions is also associated with higher levels of engagement. In particular, offering more interventions – especially in regard to general health (physical health), as well as those targeting senior leaders within the organisation – and making employees aware of them are associated with higher levels of engagement.

When looking at outcomes on the employee and organisational level in the NHS, the findings suggest that engagement is good from an individual and organisational point of view. Higher levels of engagement in our sample are associated with lower levels of presenteeism, as well as lower sickness absence rates. In addition, trusts with a relatively high level of engagement among their workforce tend to report a better financial situation and receive better ratings from patient-quality surveys. Hence, it seems that driving engagement higher makes business sense.

Table ES.1: Summary of factors (positively and negatively) associated with engagement

Variables	Coefficient	Lower bound	Upper bound
Factors negatively associated with engagement			
HSE: bullied in the workplace	-0.0958	-0.109	-0.083
Elevated mental health risk	-0.0749	-0.085	-0.065
HSE: peer support	-0.0745	-0.092	-0.057
Life satisfaction (dissatisfied)	-0.073	-0.083	-0.063
HSE: role is clear	-0.0652	-0.08	-0.051
HSE: control	-0.0581	-0.072	-0.044
HSE: strained relations	-0.0549	-0.069	-0.041
Job: Admin	-0.036	-0.051	-0.021
Sleep quality (lack of)	-0.033	-0.046	-0.02
HSE: unrealistic demands	-0.0227	-0.035	-0.01
Job: GM	-0.0166	-0.028	-0.005
Job: Social care	-0.0105	-0.017	-0.004
Factors positively associated with engagement			
# HC offer	0.0242	0.012	0.036
Home Flexitime	0.0178	0.006	0.029
# Physical offer	0.0155	0.001	0.03
Job: Nursing and healthcare assistants	0.014	0.002	0.026
# Leadership offer	0.0093	0.001	0.023

Source: Authors' calculations

Notes: analysis based on NHS Healthy Workforce survey and BHW 2016 survey. Entries report standardised regression coefficients with mean 0 and standard deviation of 1. The coefficients represent the magnitude of the association between the variable and the engagement indicator used in the analysis. For the full set of regression coefficients please see Table E.2 in the Appendix.

Acknowledgements

Abbreviations

BHW	Britain's Healthiest Workplace
CQC	Care Quality Commission
EHA	Employee health assessment
NHS	National Health Service
NICE	National Institute for Health and Care Excellence
OHA	Organisational health assessment
OLS	Ordinary Least Squares

1. Introduction

This report focuses on staff engagement in the English National Health Service (NHS). As part of Simon Stevens's 'Five-Year Forward View', the NHS is making a new commitment to improve the health and well-being of its staff and staff engagement. The logic is that improvements in staff health and well-being and engagement will lead to a variety of positive outcomes including organisational, personal and patient outcomes. This report looks in more detail at the drivers of staff engagement in the NHS and is based on the findings of the secondary analysis of the NHS Healthy Workforce and Britain's Healthiest Workplace surveys.

Generally, despite a variety of research efforts, defining and measuring engagement is not straightforward. The reason behind this is that engagement involves assessing complex feelings and emotions (see for instance Section 1.2). The term 'engagement' has often been used for a wide range of factors, ranging from different psychological states – such as commitment – to behaviours related to performance, to dispositions such as positive affect (Macey and Schneider, 2008). Against this background, this chapter briefly outlines the policy context and then describes in more detail what is meant by engagement.

1.1. NHS Context

Staff health and wellbeing is a crucially important concern for employers. Leading a healthy life, both physically and mentally, is a good principle in and of itself, which engaged employers could support. Healthy employees also benefit the workplace and productivity in many other ways. Studies conducted to estimate the costs of various health problems, either to the economy or society, range from estimating the cost of sickness absences to losses in wider productivity. Estimates of the direct costs of obesity to the NHS in England increased from £479.3m in 1998 to £4.2bn in 2007 – an eight-fold increase. Estimates of indirect costs, defined as costs arising from the effect of obesity on the wider economy (such as productivity loss), increased from £2.6bn to £15.8bn – a six-fold increase (National Obesity Observatory, 2016). More direct measures of productivity loss have demonstrated that the approximate cost of sickness absences to British business is £15bn per annum (Black and Frost, 2011).

In September 2015, the NHS England Chief Executive, Simon Stevens, announced a new initiative to improve the health and wellbeing of NHS staff. A total budget of £5m was made available to support three main activities:

- First, a major drive for **improved NHS staff health** spearheaded by a group of leading NHS hospital, mental health, ambulance, community and clinical commissioning group employers, in partnership with NHS Employers and Public Health England.

- Second, a new **nationally-specified occupational health service for GPs** suffering from burnout and stress, in partnership with the Royal College of GPs and British Medical Association General Practitioners Committee.

- Third, **national action** by NHS England working with Public Health England and other agencies to challenge and support catering contractors and Private Finance Initiative providers to raise the standards of food and nutrition.

This initiative follows a number of important policy developments aimed at improving staff health and well-being in general, and in the NHS specifically. Milestones in these policy developments are outlined below.

In 2008, Dame Carol Black's review, *Working for a Healthier Tomorrow*, recognised that there is strong and growing evidence that work, and health and well-being, are closely and powerfully linked and need to be addressed together (Black, 2008).

To investigate the health and well-being of staff in the NHS specifically, the Department of Health commissioned an independent review led by Dr Steven Boorman in 2009.[1] RAND's work for the Boorman Review gave an indication of potential savings that could be made by organisations from adopting more effective ways of managing the health and well-being of staff; savings to the NHS alone were estimated at £500m a year (see for instance the Interim Report of the Boorman Review, Boorman and Fellow, 2009).

The Five Year Forward View, published by NHS England in 2014, underscores the importance of staff health and well-being as a crucial factor in improving the performance of the NHS (NHS England, 2014). In the same year, Public Health England launched the Workplace Wellbeing Charter, which, for the first time, contains a set of national standards for workplace health.[2] The Charter has been designed to provide employers with a systematic, evidence-based approach to workplace health improvement.

Finally, in 2015, the National Institute for Health and Care Excellence (NICE) issued guidelines on workplace health (NICE, 2015). The guideline 'covers how to improve the health and well-being of employees, with a focus on organisational culture and the role of line managers'.

A review of the literature on staff experience and patient outcomes by Dawson leads to the promising conclusion that, overall, there is a substantial amount of recent evidence that the experiences of staff – particularly in the form of support received from supervisors and others – and staff engagement, are associated with the care provided to patients, in the form of patient satisfaction, health outcomes and ratings of quality of care, as well as staff absenteeism and turnover (Dawson, 2014).

An important part of the new initiative launched by Simon Stevens is the development of a 'core offer' on health and well-being that NHS organisations should promote to improve staff health and well-being. The core offer was developed by NHS England, NHS Employers, Public Health England and the Social

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[1] For all documentation relating to the Boorman Review see:
http://webarchive.nationalarchives.gov.uk/20130107105354/http://www.dh.gov.uk/en/Publicationsandstatistics/Publications/PublicationsPolicyAndGuidance/DH_108799

[2] The Workplace Wellbeing Charter. As of 22 November 2017: https://www.wellbeingcharter.org.uk

Partnership Forum, and 11 leading NHS organisations (NHS Employers, 2016). The core offer consists of the following key components:

- Supporting and developing board-level leadership and engagement

- Developing core line-management training

- Supporting and enabling healthier food choices

- On-site NHS Health Checks

- Rapid access to health services, such as physiotherapy and talking therapies, and

- Promoting physical activity.

RAND Europe was asked to conduct a survey among the 11 NHS Leadership organisations and other NHS organisations that were not part of the Leadership group. The survey was designed to collect evidence of the health and well-being of staff, as well as of the actions these organisations were taking to improve staff health and well-being. In addition, we included NHS organisations that were surveyed as part of our work on Britain's Healthiest Workplace. We revisit the survey work in the sections below.

1.2. What is engagement and why does it matter?

The term 'engagement' has taken a variety of different meanings in the academic literature. Firstly, engagement has been used to refer to a psychological state, such as involvement or commitment. Secondly, engagement has been understood as a performance construct, including effort or behaviour such as pro-social and organisational citizenship behaviour, or thirdly, a combination of both (West and Dawson, 2012). Generally, researchers have measured engagement using different approaches, including a description of the conditions under which people work, as a behavioural outcome and as a psychological orientation, with the latter the most common in academic research. For instance, engagement has been described as a positive, fulfilling and work-related state of mind characterized by vigour, dedication and absorption (Schaufeli *et al.*, 2002). In addition, employees committed to an organisation may not necessarily be committed to their current job within the organisation.

Summarising the literature above, the characteristics of an engaged staff can be described as motivation, satisfaction, commitment, meaningful work, pride and advocacy. As such, engaged employees would exert discretionary effort to the benefit of the organisation.

Generally, the organisational psychology literature agrees about the content of the term 'engagement', whereas among practitioners 'engagement' is often understood differently. In organisational psychology research, a range of constructs has been established to describe the concept of engagement, including proactive behaviour (Crant, 2000), personal initiative (Frese and Fay, 2001), and organisational citizenship behaviour (Organ, 1988), all of which can be regarded as positive behavioural outcomes of employee engagement. For instance, proactive behaviour can be defined as taking initiative, and personal initiative is closely related to this. Organisational citizenship behaviour is more related to the dedication aspect of engagement. Pro-social behaviour is regarded as similar in nature but relates more widely to society rather than just organisations. In any case, the more engaged the employee, the more likely they

are to display these behaviours, with the potential to contribute to the effectiveness and health of an organisation (Macey and Schneider, 2008).

There is no consensus amongst academics about the meaning of engagement. For instance, engagement is often used to represent involvement in decision making, or broader – the openness of communication channels between management and employees, including involvement in managerial decisions (Dickinson and Ham, 2008). Others have adopted a broader concept of engagement, which is defined as a positive attitude held by employees towards their organisation and its values. For instance, referring more to organisational commitment, an engaged employee is aware of business context and works with colleagues to improve performance within the job for the wider benefit of the organisation (Robinson *et al.*, 2004).

Against this background, the concept of employee engagement can be summarised along the following elements (West and Dawson, 2012):

- Psychological engagement
- Proactivity
- Enthusiasm and initiative
- Organisational citizenship behaviours and organisational commitment
- Involvement in decision making
- Positive representation of the organisation to outsiders.

Accordingly, a set of factors have been identified that are associated with employee engagement:

- Age
- Ethnicity
- Occupation
- Organisational tenure
- Workplace stress
- Human-resource management practices.

According to Robinson *et al.* (2004) engagement declines as employees get older. Other demographic factors are also linked to variations in engagement. For instance individuals belonging to ethnic minority groups tend to report lower engagement compared to other groups. Higher engagement is similarly observed for employees in managerial and professional roles compared to employees at lower grades. In addition, it has been found that engagement typically declines with the length of organisational tenure or with employees who experience large amounts of stress and violence and harassment at work.

An abundance of academic literature described that employee engagement is associated with a range of positive outcomes, highlighting why organisations should strive to improve workforce engagement. For instance, engagement is associated with performance at the individual and organisational level. It has also been found that engagement is linked to job and role performance and more engaged employees have lower intentions to leave, hence reducing staff turnover (Bakker *et al.*, 2004). But also at the organisational level, engagement has been found to be associated with better business performance (Harter *et al.*, 2002), higher client satisfaction (Salanova *et al.*, 2005), and better financial returns (Xanthopoulou *et al.*, 2009).

As an adverse individual outcome of a lack of engagement, burnout, which is a negative psychological syndrome linked to stress, has been highlighted in the literature. Indeed, engagement and burnout are often described as two sides of the same coin – while engagement is described by vigour and absorption, burnout can be characterized by cynicism (indifference or distant attitude to work), exhaustion (depletion or draining of emotional resources) and inefficacy (lack of satisfaction) (Leiter and Maslach, 2008). That is, burnout has been associated with a variety of negative consequences for both individuals and organisations (Prins *et al.*, 2010), including poor mental health, depression, absenteeism and presenteeism as well as consequences for family and happiness. This research could be particularly relevant for a health workforce that finds itself under pressure due to the high demand for healthcare and funding that has not kept up with this demand.

Within the health sector, some research shows that health professionals who are more engaged are less likely to make mistakes, and higher engagement leads to better patient outcomes (Laschinger and Leiter, 2006). In addition, with an emphasis on the UK National Health Service, it has been shown that higher levels of staff engagement are associated with better health outcomes and lower levels of stress and presenteeism (Admasachew and Dawson, 2010).

1.3. Objectives of this study

Against this background, the aim of this study is to examine the factors associated with engagement among NHS employees. In essence, this study looks at the potential link between organisational, personal and health-related factors and engagement, and examines how engagement is linked with outcomes at the individual or organisational level. To that end we analyse data from RAND's NHS Healthy Workforce Survey, which was conducted in 2016 across 19 UK NHS trusts and health organisations. In addition, the data is complemented with employer- and employee-level information on nine NHS health organisations from Britain's Healthiest Workplace Survey. Specifically, this report aims to find answers to the following four research questions:

1. What does employee engagement mean in the NHS?

2. What factors are associated with employee engagement and what do we know about its effect on individual and patient outcomes and other organisational outcomes?

3. What drives or creates the circumstances in which engagement can happen in the NHS?

4. What interventions are effective in improving employee engagement in the NHS?

In order to answer these research questions, the report draws on a set of research methods, including multivariate regression analysis, which is described in more detail in Chapter 2.

1.4. Structure of this report

This report is organized as follows: Chapter 2 outlines the research approach taken and describes in more detail the data used in the analysis. Chapter 3 reports the findings from the analysis, including the determinants of engagement as well as the associations between engagement and a set of different

outcome measures. Chapter 4 summarises the findings of the study and concludes with specific recommendations.

2. Research design

This chapter describes in more detail the research approach taken. It starts by describing the different data sources used in the analysis, including the NHS Healthy Workforce survey as well as other data provided by the NHS. Furthermore, this chapter describes the applied statistical method.

2.1. Sources of data

For this report we draw on a variety of different data sources collected by RAND – such as the NHS Healthy Workforce Survey or Britain's Healthiest Workplace Survey – as well as other data sources provided by the NHS, including the NHS Staff Survey, sickness absence rates or patient satisfaction surveys.

2.1.1. The NHS Healthy Workforce and Britain's Healthiest Workplace Surveys

The NHS Healthy Workforce Survey was conducted by RAND in 2016 and collected responses from employers and employees using two surveys: the Organisational health assessment (OHA) and the Employee health assessment (EHA) respectively. Participating organisations returned the OHA, including general organisational characteristics such as the size of the organisation, organisational perceptions on work environment and culture, and information on the organisation's approach to health promotion and well-being interventions.[3] Subsequently, employees were invited to respond to the EHA, which collected information on lifestyle and behavioural and clinical risk factors (including weight, diet, exercise, smoking, alcohol intake, stress, cholesterol and blood pressure), as well as asking how often people participate in organisational health-and-well-being interventions. The EHA includes about 150 questions on:

- Lifestyle health indicators (including physical activity, nutrition, alcohol consumption and smoking)

- Biomarkers (including blood pressure, BMI, and blood tests)

- Screening where appropriate (for example attendance at NHS Health checks, or other screening)

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[3] The OHA was completed by: 12 respondents in 'Central Functions/Corporate Services (e.g. HR, Finance, Information Systems, Information Technology)', an additional three respondents identified as 'Director of organisational development and workforce', and four by respondents identified as other staff, mainly in HR functions.

- Long-term health conditions

- Mental well-being (including questions about sleep and financial concerns)

- Musculo-skeletal problems

- Health and Safety Executive Management Standards Indicators (these include questions about bullying and workplace stress)

- Job-engagement measures

- Productivity measures (absenteeism and presenteeism)

- Knowledge of, participation in and evaluation of workplace health and well-being initiatives.

The participating organisations were asked to answer the OHA first and then distribute a link to the EHA with a letter of support to all staff for which they had e-mail addresses. RAND provided organisations with a minimum response rate for each of the trusts based on their overall population. This was done to provide greater confidence in the sample that we had for each NHS organisation but also inadvertently meant that we indicated to larger employers that fewer of their staff proportionally had to participate than in smaller NHS organisations. On the basis of the segmented population data supplied to us by the health organisation, we also tracked the participation of groups who are less likely to participate – such as those on low incomes and working remotely – to ensure participation of those groups. We fed this information back to the participating organisations when sending updates.

Feedback was provided to individuals and to organisations. Organisations received an organisational report feeding back data that was collected in the EHA (at aggregate level) and in the OHA. As we asked similar questions to both employers and their employees in certain areas of the survey, we could also comment on divergence of perceptions between the employer and employee. Individuals received a personal health report highlighting the state of their general health and some of the risks that they may face. This script was agreed with Public Health England. In this way, the surveys had two purposes: collecting holistic data on health and well-being from employers and employees; and aiming to provide the best possible information on health and well-being to the participating employee and employer.

The OHA and the EHA can be linked through a unique organisational identifier. In total, 19 NHS organisations took part in the survey, with a combined headcount of 105,838 employees. The survey was distributed to 91,872 of these staff, and a complete survey was collected from 7,246 employees, resulting in a response rate of about 8 per cent.[4,5]

Two groups of health organisations participated in the survey. First, the 'Leadership group' consisted of organisations participating in the NHS England initiative. These organisations have received some financial and advisory support from NHS England and other stakeholders to develop or implement new

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[4] See Appendix A for a more detailed description of the survey's response rates and sampling.

[5] This is a normal response rate. Note that the overall response rate based on the headcount of survey recipients provided by the organisations was 7.9 per cent. This may be a conservative estimate as many organisations indicated that all staff received the link to the survey. However, if the survey did not actually reach all staff, the response rate would be higher. In addition, the research team calculated minimum response rates for all participating organisations required to be included in the analysis, which all organisations reached.

health and well-being initiatives.[6] The second group consisted of organisations not participating in the programme. This group was selected through an exploratory matching exercise. Based on a number of traits, such as sickness absence rates, staff turnover and questions from the NHS staff survey (e.g. level of satisfaction with 'The support I get from my immediate manager'), the participating organisations were matched to non-participating organisations to allow for a more rigorous exploration of the differences between these two groups.

In total, 19 NHS organisations participated in the survey, including NHS England. The organisations include clinical commissioning groups, teaching hospitals, ambulance trusts and children's hospitals, as shown in Table 2.1.

Table 2.1: Participating organisations (headcount from 2016)

Leadership group Headcount		Matched organisations Headcount	
Birmingham Children's Hospital NHS FT	3,632	Great Ormond Street Hospital For Children NHS FT	3,900
Bradford District Care NHS FT	2,827	Rotherham Doncaster and South Humber NHS FT	3,664
Epsom and St Helier University Hospitals NHS Trust	4,725	NHS Milton Keynes CCG	73
Northumbria Healthcare NHS FT	8,764	Northern Devon Healthcare NHS Trust	4,431
Nottingham University Hospitals NHS Trust	12,646	South Central Ambulance Service NHS FT	3,075
NHS Rotherham CCG	92	Sandwell and West Birmingham Hospitals NHS Trust	6,883
Sheffield Teaching Hospitals NHS FT	15,435	East Cheshire NHS Trust	3,451
Walton Centre NHS FT	1,335		
University Hospital Southampton NHS FT	9,714		
West Midlands Ambulance Service NHS FT	4,271		
York Teaching Hospital NHS FT	8,508		
NHS England	6,000		

Source: Health and Social Care Information Centre, Provisional NHS Hospital & Community Health Service (HCHS) monthly workforce statistics, February 2016

Varying in size and location, the participating organisations cover a range of organisational types within the NHS. It is important to note that while the participating organisations represent a diverse range, generalisations of the findings to the wider NHS should only be made with some caution as the sample of participating organisations was not intended to be representative of the entire NHS (see Appendix A for further detail on how the survey compares to the NHS staff survey). In addition to the NHS Healthy

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[6] In September 2015, the NHS England Chief Executive, Simon Stevens, announced a new initiative to improve the health and well-being of NHS staff. A total budget of £5m was made available to support three main activities, including: (1)a major drive for improved NHS staff health spearheaded by a group of leading NHS hospital, mental health, ambulance, community and clinical commissioning group employers, in partnership with NHS Employers and Public Health England; (2) a new nationally-specified occupational health service for GPs suffering from burnout and stress, in partnership with the Royal College of GPs and British Medical Association General Practitioners Committee; and (3)national action by NHS England working with Public Health England and other agencies to challenge and support catering contractors and Private Finance Initiative providers to raise the standards of food and nutrition.

Workforce survey, RAND Europe is involved in managing Britain's Healthiest Workplace (BHW) survey on an annual basis since 2014. In contrast to the NHS Healthy Workforce Survey, the BHW survey is generally open to all companies, government organisations and other organisations in the UK. However, the way the survey works is almost identical to the NHS Healthy Workforce survey and about 90 per cent of questions are identical. So, the data is broadly comparable between surveys. For instance, in 2016 it included nine NHS organisations, from which we use data in this study. These organisations include:

- Salisbury NHS Foundation Trust
- Whittington Health
- Greater Manchester West Mental Health NHS Foundation Trust
- Basildon & Thurrock University Hospital
- Taunton & Somerset NHS Foundation Trust
- Gloucestershire Hospitals NHS Foundation Trust
- The Pennine Acute Hospitals NHS Trust
- Wrightington, Wigan and Leigh NHS Foundation Trust
- Hampshire Hospitals NHS Foundation Trust.

It is important to note that BHW is open to everyone. These NHS organisations opted into the BHW survey and their motivations for doing so could be manifold: they may feel that they have a good story to tell on organisational health and well-being; they may wish to benchmark their performance and seek additional information; they may be on an improvement journey and want to gauge progress; etc.

In total the data sample includes 28 organisations with a combined number of respondents of 9,375. The response rate was broadly similar to what we saw in the NHS Healthy Workforce survey discussed earlier.

The main reasons for using the sample that we collected through these surveys instead of systematically collected data through NHS official data sources, such as the staff survey, were as follows. Collecting data from the organisation as well as the employee at the same time starts to build an understanding of the potential divergence between employer and employee perspectives on health and well-being (such as perceptions on workplace culture and the health and well-being offer). The surveys collect far more holistic data on health and well-being than any other NHS data sources, including self-reported data on health, personal circumstances, work environment, and a range of outcomes that are of interest to those studying health and well-being in the workplace. Since BHW is part of a larger data-collection exercise on health and well-being in a diverse range of typically large employers across Great Britain, comparisons between NHS and other large employers are possible and allow us to put the performance of the NHS in context compared to other employers in the health sector and across other sectors. In addition, this research aims to build on the seminal work conducted by West and Dawson and as such looking at different data sources seemed an obvious extension to their model and validation exercise.

Clearly, there can be debates about the samples used in this research and how data was collected. We provide more detail on how the sample used in this research compares to the other samples used on NHS staff in the appendices. Overall, it was felt that on balance the sample collected was quite similar to samples used in the NHS Staff Survey and the outcomes of some of our analyses broadly confirmed some of the analysis undertaken on this data by other researchers. This provided additional confidence in the

sample used. Still, it is clear that care needs to be taken when generalising our findings to the whole of the health system.

2.1.2. Other NHS data sources

In order to analyse the association between employee engagement and a variety of outcome measures, we complement the information from the NHS Healthy Workforce and BHW surveys with information at the trust level provided by the NHS. Specifically, we use sickness absence-rate data,[7] patient satisfaction surveys for acute and mental health trusts by the Care Quality Commission (CQC)[8] and NHS account data that can be merged at the trust level to the NHS Healthy Workforce survey. In the analyses that follow, we at times use different samples and data sources, but these are always indicated in the text or graphs.

2.1.3. How do we measure engagement?

The BHW survey of 2016 includes the 9-item Utrecht Work Engagement Scale (UWES-9), which has been developed to include the three constituting dimensions of work engagement (Schaufeli *et al.*, 2006). In more detail, the UWES-9 utilizes three scales to determine the level of work engagement: vigour, dedication and absorption. It is a test of how to measure work engagement both on an individual and group level:

1) **Vigour:** refers to high levels of energy and mental resilience while working, the willingness to invest effort in one's work and persistence in the face of difficulties.
2) **Dedication**: refers to being involved in one's work, finding meaning in one's work, being challenged and experiencing a sense of enthusiasm, inspiration and pride.
3) **Absorption**: refers to being fully concentrated and engrossed in one's work, whereby time passes quickly and one has difficulty detaching oneself from work.

Individuals are asked how they feel about their job with the following questions, which are coded on a 7-point Likert scale (never to always):

1) At my work I feel bursting with energy
2) At my job I feel strong and vigorous
3) I'm enthusiastic about my job
4) My job inspires me
5) When I get up in the morning I feel like going to work
6) I feel happy when I work intensively
7) I'm proud of the work that I do
8) I am immersed at my work
9) I get carried away when I am working.

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[7] https://digital.nhs.uk/catalogue/PUB21491

[8] http://www.cqc.org.uk/publications/surveys/adult-inpatient-survey-2016

The engagement scale can be built into three sub-indicators of vigour, dedication and absorption based on the nine questions, and an overall engagement score across the nine questions can be developed, with a larger value indicating higher engagement.

Unfortunately, the NHS Healthy Workforce survey does not include the questions related to the UWES-9, and also does not directly ask employees about their organisational commitment. It was decided at the time to cut some questions to make the survey shorter. For that reason, a proxy indicator had to be identified to cover different elements of work engagement as outlined by West and Dawson (2012), including psychological engagement, and involvement in decision-making. To that end, we use the question from the NHS Healthy Workforce survey asking how satisfied employees are with their job as a proxy variable for psychological engagement. Previous studies have shown that job satisfaction can act as a proxy for work engagement (e.g. Stoeber *et al.*, 2013).

In addition, the NHS Healthy Workforce survey provides information about different channels through which employees can be involved in decision-making, for instance:
- Regular meetings between employees and immediate manager
- Regular staff meetings open to all employees at the organisation's premises
- Meetings of a temporary group or committee or ad-hoc groups
- Dissemination of information through newsletters, website, notice boards, email etc
- Discussions with employees through social media or in online discussion boards
- Suggestion schemes (i.e. the collection of ideas and suggestions from the employees, voluntarily and at any time)
- Employee surveys among employees.

Based on the variables listed above, an engagement indicator was built from the average across the standardised values of the variables of job satisfaction and the direct involvement indicators an employee has at his/her work. In order to test the appropriateness of the constructed engagement indicator we compared it with the UWES-9 total scale for those employees in our survey that were sampled in BHW, and hence have been asked the UWES-9 questions. The correlation coefficient between the engagement indicator and the total UWES-9 scale is 0.58, which suggests a non-perfect but solid correlation.[9]

Table 2.2 reports the average values of the engagement indicator for each of the organisations in our sample alongside the (self-reported) number of employees, the received responses and the response rate. The figures reveal variation in the levels of employee engagement across the different organisations. Note that we tested for differences in engagement among the Leadership group and the other organisations, but found no statistically significant difference. One explanation could be that it is early in the programme that NHS England put in place. Another could be that the programme is not likely to have much effect on staff engagement. This could be because of other pressures in the system (e.g. funding and the demand for healthcare) or that programmes of this nature do not affect staff engagement much in any case. However, based on the data we are not able to confirm which hypothesis is correct.

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[9] Note that a correlation of 1 would correspond to a perfect correlation.

Table 2.2: Comparison of engagement by organization

Organisation	Engagement indicator	Lower bound	Upper bound
Birmingham Children's Hospital	0.490	0.487	0.493
Bradford District	-0.077	-0.080	-0.073
Epsom and St. Helier	-1.449	-1.459	-1.439
Northumbria	-0.075	-0.078	-0.072
Nottingham University Hospitals	0.540	0.539	0.542
Rotherham CCG	-0.019	-0.035	-0.002
Sheffield Teaching Hospital	-0.126	-0.127	-0.124
Walton Centre	0.557	0.546	0.568
University Hospital Southampton	0.591	0.590	0.593
West Midlands Ambulance	0.450	0.435	0.466
York Teaching Hospital	-1.305	-1.308	-1.303
Great Ormond Street	-3.309	-3.318	-3.300
Rotherham, Doncaster and South Humber	0.563	0.555	0.572
Milton Keynes CCG	-1.273	-1.300	-1.246
Northern Devon	0.530	0.528	0.532
South Central Ambulance	-0.248	-0.251	-0.246
NHS England	-0.849	-0.850	-0.848
Sandwell and west Birmingham	-0.230	-0.234	-0.226
East Cheshire	0.442	0.438	0.446
Salisbury NHS Foundation Trust	0.603	0.599	0.606
Whittington Health	0.530	0.524	0.537
Greater Manchester West MH	-0.077	-0.083	-0.072
Basildon & Thurrock University Hospitals	0.498	0.494	0.503
Taunton & Somerset	0.521	0.516	0.526
Gloucestershire Hospitals	0.516	0.513	0.519
The Pennine Acute Hospitals	0.606	0.600	0.613
Wrightington, Wigan and Leigh	0.603	0.600	0.606
Hampshire Hospitals	0.546	0.536	0.557

Source: Authors' calculations

Notes: analysis based on NHS Healthy Workforce survey and BHW 2016 survey. Entries report mean engagement indicators for each organisation. The engagement indicator represents a standardized index with mean 0 and standard deviation of 1. The last two columns report the lower and upper bound of the corresponding 90% confidence interval.

2.2. Research approach

Similar to the study by West and Dawson (2012), we conduct multilevel regression analysis using the overall engagement score described in the previous section across all employees in our sample (from 8 BHW trusts and 19 NHS Healthy Workforce trusts). From this, we examine the predictors of engagement, as well as the association between engagement and a set of individual outcome measures, including absenteeism/presenteeism and trust-level outcomes such as the financial situation, employee turnover, sickness rates and patient satisfaction. Overall, this study is complementary to the seminal work by West and Dawson (2012) in that it looks at the determinants and outcomes of employee engagement within the NHS, but using a different data source and with a focus on different organisational-level

intervention (e.g. health and well-being interventions, leadership training) beyond the common human resource management (HRM) practices. Figure 2.1 depicts in more detail the analytical approach taken in this study and how it compares to West and Dawson (2012).

In the first instance the overall engagement score (and the UKWES-9 overall score for the BHW sub-sample) are included as outcome variables to examine the determinants of engagement among NHS employees. In these models, the predictor variables are manifold, including the following factors:

- **Demographic**: education, ethnicity, age, gender, income
- **Occupational**: type of NHS occupation, organisational tenure
- **Work environment**: workplace-related stress, peer support, management support, bullying
- **Health and lifestyle factors**: musculoskeletal and chronic health conditions, mental health, sleep and BMI
- **Personal factors**: children, providing unpaid care, financial concerns
- **Organisational factors**: provision of health and well-being interventions.[10]

In the second instance, the overall engagement score is used to examine the link between engagement and outcome variables, holding other factors that may determine engagement and the outcome variables under consideration simultaneously. In essence, we look into the relationship between employee engagement and the following outcome variables:

- **Absenteeism**: individual level, reported by the employee using WPAI scale[11]
- **Presenteeism**: individual level, reported by the employee using WPAI scale
- **Sickness absence rates**: organisational level
- **Overall patient satisfaction**: organisational level[12]
- **Staff turnover**: organisational level[13]
- **Financial situation**: organisational level[14]
- **Operational surplus/deficit**: organisational level.[15] [16]

The statistical analysis is conducted using STATA Version 15.[17] All results are presented at the 10 per cent significance level or lower. All results presented are from a model specification including all variables as predictor variables alongside engagement. As described in section 2.1 above, the participating health organisations have been either selected by NHS England or have self-selected to participate in the survey.

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[10] See Appendix B for a full list of interventions included in the surveys.

[11] See Appendix C for a more detailed description of the WPAI scale.

[12] http://www.cqc.org.uk/publications/surveys/adult-inpatient-survey-2016

[13] Self-reported from HWS and BHW surveys

[14] Self-reported from HWS and BHW surveys

[15] Foundation trusts: https://www.gov.uk/government/publications/nhs-foundation-trust-accounts-consolidation-ftc-files-201617. We use SoCI subcode 110 for the operational surplus/deficit measure.

[16] Trusts: https://www.gov.uk/government/publications/nhs-trusts-accounts-2016-to-2017. We use the SC 140 subcode for the operational surplus/deficit measure.

[17] https://www.stata.com/new-in-stata/.

Hence, they may not be fully representative among the overall population of health organisations. Generally, we acknowledge that the data in the NHS Healthy Workforce Survey is not fully representative for the whole NHS workforce and also not fully representative for all NHS organisations. However, beyond the NHS Staff Survey there is no other quantitative data source available that collects information on NHS employees and their engagement in the same scope. While we cannot fully exclude the impact on the parameter estimates presented below of a potential response across the NHS workforce, in the statistical analysis we compare employees within specific organisations, and hence at least the issue of selection bias at the organisational level is mitigated to some extent.[18]

Figure 2.1: Analytical framework for this study
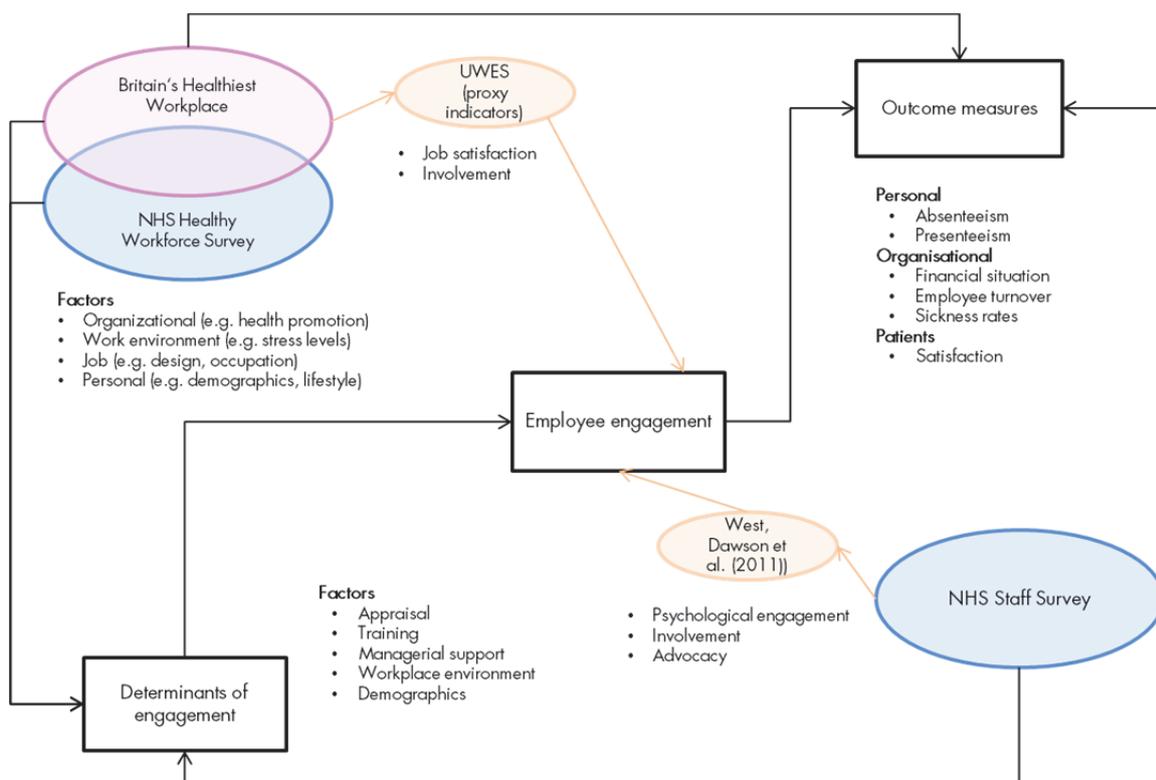
In addition, from previous work we know that within organisations certain sub-groups of employees may have different response rates (Hafner *et al.*, 2015). It may be that those staff cohorts least likely to respond are those most likely to provide the more interesting and relevant results, e.g. overworked nurses and junior doctors as well as staff not at a static workstation. In line with recommendations from the academic literature (e.g. Solon *et al.*, 2015 we use organisational fixed-effects in all the regression, which adjusts for all (observed and unobserved) effects at the level of the organisation or higher. In addition, the regression models further control for a wide range of factors that are correlated with sampling bias. For instance, the model specifications adjust for demographic factors such as age, gender and income, as well as other

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[18] The regression models include so called organisational fixed-effects that control for all factors at organizational level that may affect engagement and hence exploits mainly within-organisational variation.

variables including occupation. So overall, we therefore believe that the implications of these potential biases for the analyses presented in the rest of this report are relatively low and should be somewhat representative at least on the level of the employees.

In addition it is important to stress that the findings presented in this study need to be interpreted as associations and not necessarily causal effects. For instance, even though in the multivariate regression analysis we adjust for a variety of different variables, potential biases may arise due to corresponding unobserved individual effects that we cannot account for, but are correlated with engagement. These biases are difficult to correct for with the cross-sectional nature of the data and would need longitudinal data.

3. Engagement in the NHS: empirical analysis of the NHS Healthy Workforce and BHW surveys

This chapter presents the findings from an empirical analysis of the NHS Healthy Workforce Survey. Firstly, engagement among NHS employees is compared against information collected from the wider BHW survey collection. Secondly, the determinants of engagement among NHS employees are investigated. Finally, the link between engagement and individual- and trust-level outcomes are examined.

3.1. How does the NHS compare to other sectors?

As reported in Table 3.1, in comparison with other UK sectors, engagement among NHS employees is at average levels compared to other sectors. Specifically, after adjusting for demographic factors that most likely are associated with engagement – including, gender, age, income and education – employees in the retail and wholesale, other services, pharmaceuticals, professional services, media and telecommunications and other public-sector employees report higher levels of engagement than employees in the NHS.

Table 3.1: Comparison of engagement by sector

Sector	Engagement indicator	Lower bound	Upper bound
NHS Healthy Workforce sample	0.014	0.014	0.014
Transportation, Shipping, Logistics	-0.842	-0.844	-0.841
Natural Resources and Chemicals	-0.716	-0.720	-0.712
Manufacturing	-0.152	-0.152	-0.152
High Technology (e.g. electronics, software, ICT)	-0.123	-0.123	-0.122
Financial Services	-0.010	-0.010	-0.010
Insurance Services	0.017	0.016	0.017
Public Sector (e.g. Public Authority, Education)	0.057	0.056	0.059
Other Services	0.095	0.095	0.096
Media/Telecommunications	0.165	0.162	0.167
Retail and Wholesale	0.237	0.236	0.238
Pharmaceuticals and Life Sciences	0.253	0.252	0.254
Professional Services (e.g. Law, Accounting, Consulting)	0.330	0.329	0.331

Source: Authors' calculations

Notes: analysis based on NHS Healthy Workforce survey and BHW 2016 survey. Entries report means for each sector adjusted for age, gender, and education. The engagement indicator represents a standardized index with mean 0 and standard deviation of 1. The last two columns report the lower and upper bound of the corresponding 90% confidence interval.

Furthermore, employees in financial services, insurance services, high technology (e.g. software, ICT), natural resources and chemicals, transportation and manufacturing report on average lower levels of engagement in our samples using our engagement indicator. In essence, based on the survey, the findings suggest that the NHS organisations in our sample are not entirely dissimilar to other large employers across different sectors in the UK, but that there is still untapped potential for improvement.

3.2. Factors associated with employee engagement

The existing literature suggests that a set of factors can be linked to employee engagement, including demographic, personal and lifestyle factors. Furthermore, as Dawson and West (2011) show, organisational factors such as HRM practices can foster engagement. In what follows we examine the associations between various factors and employee engagement using the combined NHS Healthy Workforce and BHW survey. To assess the associations between different factors and employee engagement we apply ordinary least squares (OLS) in the regression analysis with all variables in the analysis standardised with mean zero and standard deviation of 1 to compare the importance of each factor in terms of magnitude. Note that even though we present the different factors separately below, the model specification adjusts for all the factors simultaneously.

3.2.1. Demographic factors

The analysis reveals that NHS employees with a university degree (Education: high) in our sample show more engagement on average, using our engagement indicator, than employees without a formal degree but the difference is not statistically significant. Regarding gender, Figure 3.1 shows that female employees tend to be more engaged on average than their male counterparts.

Figure 3.1: Demographic factors – education and gender
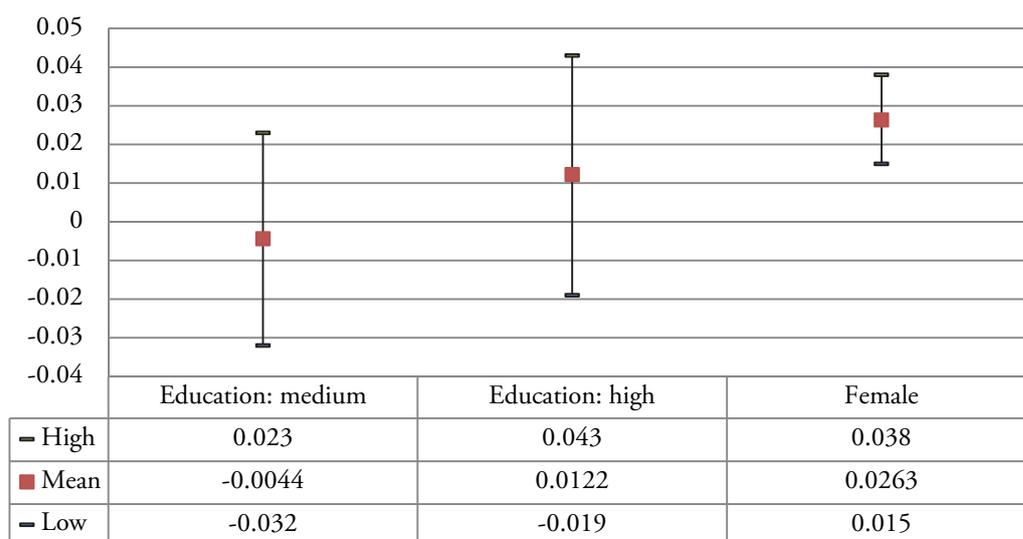
	Education: medium	Education: high	Female
High	0.023	0.043	0.038
Mean	-0.0044	0.0122	0.0263
Low	-0.032	-0.019	0.015

Notes: the red dot reports the point estimate of the regression coefficient from a regression using the standardised engagement score as outcome variable. The 'High' and 'Low' values and corresponding whiskers in the plot report the upper and lower limits

of the 90% confidence interval of the parameter estimate. Specifically, the coefficient is meant to be statistically significant from zero if the whiskers do not change their sign (negative/positive) regarding the lower and upper bound of the confidence interval.

Looking at ethnicity, we find that amongst NHS employees across ethnic groups, those responding as being from a 'white' background showed greater staff engagement than those from ethnic minority groups. However the corresponding parameter estimates were not statistically significant from zero (see Figure 3.2).

Interestingly, similar to previous research, we find that the association between age and engagement in our sample is U-shaped, meaning that engagement tends to decrease with age but stalls at around 55 and then increases again (See Figure 3.3).[19]

Figure 3.2: Demographic factors – ethnicity
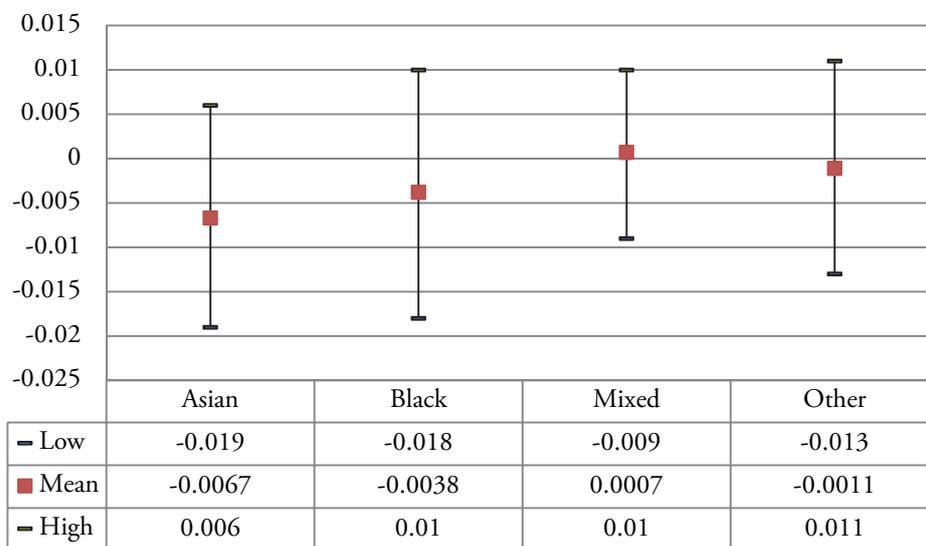
	Asian	Black	Mixed	Other
▬ Low	-0.019	-0.018	-0.009	-0.013
▪ Mean	-0.0067	-0.0038	0.0007	-0.0011
▬ High	0.006	0.01	0.01	0.011

Notes: the red dot reports the point estimate of the regression coefficient from a regression using the standardised engagement score as outcome variable. The 'High' and 'Low' values and corresponding whiskers in the plot report the upper and lower limits of the 90% confidence interval of the parameter estimate. Specifically, the coefficient is meant to be statistically significant from zero if the whiskers do not change their sign (negative/positive) regarding the lower and upper bound of the confidence interval.

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[19] Note that the U-shaped curve stems from plotting the coefficient of age and age square based on the regression model presented in Table E.2 from the Appendix.

Figure 3.3: Demographic factors – age
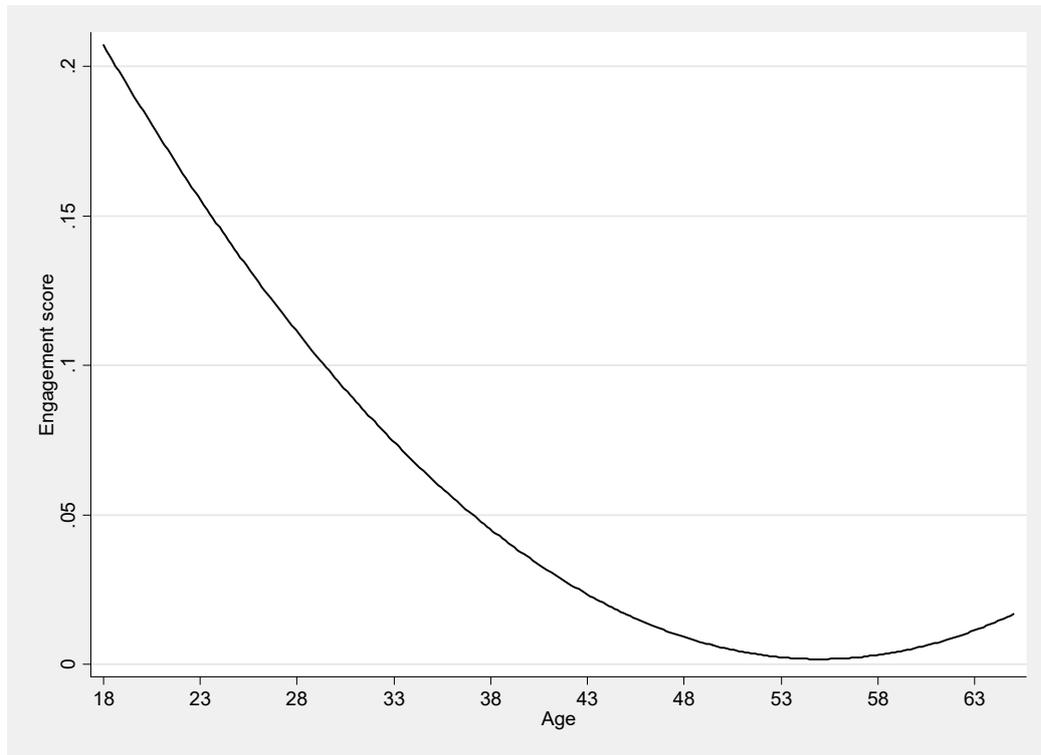
Notes: figure shows the plot of the coefficients of age and the square of age as reported in table E.2 in the Appendix.

3.2.2. Occupational factors

The findings further suggest that there is some difference in engagement across different NHS occupational groups. For instance, compared to Allied Health Professionals[20], we find that in our sample medical and dental occupations (job_md) show more engagement on average on our proxy engagement indicator, but the difference is not statistically significant. The same applies for ambulance workers (job_amb). The same applies to employees for Public Health England (job_ph) and Commissioners (job_com), which tend to be less engaged in our sample on average, when compared to Allied Health Professionals, but the difference is not statistically different from zero. Furthermore, there is not much difference between Allied Health Professionals and Registered Nurses and Midwifes (job_rnm) but Nursing and Healthcare assistants tend to be more engaged (job_nha), and the difference is statistically significant from zero. In addition, we find that individuals in social care (job_sc), administrative function (job_admin) and general management (job_gm) report lower levels of engagement.

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[20] Allied health professions are health-care professions distinct from nursing, medicine, and pharmacy. They work in health-care teams to make the health-care system function by providing a range of diagnostic, technical, therapeutic and direct patient care and support services that are critical to the other health professionals they work with.

Figure 3.4: Occupational factors – NHS occupations
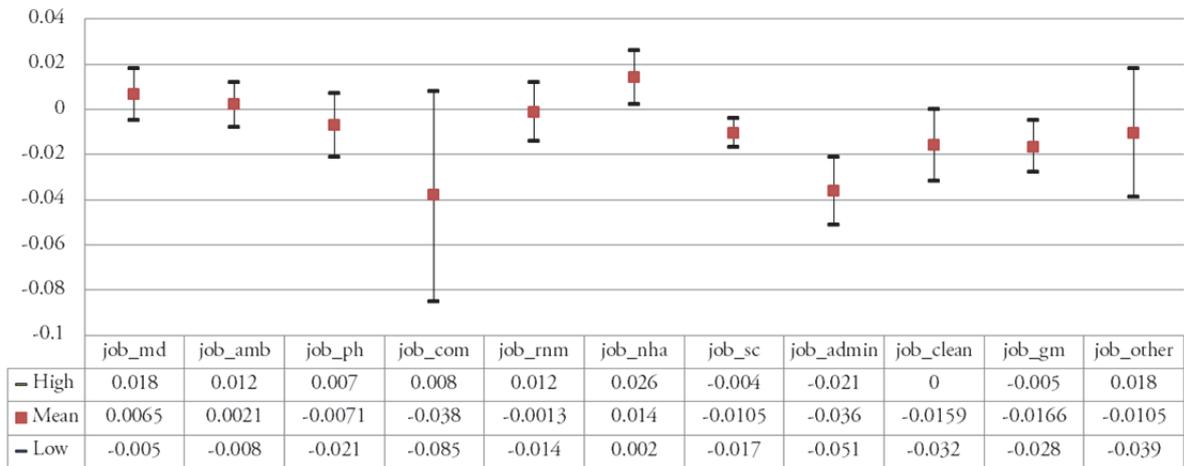
	job_md	job_amb	job_ph	job_com	job_rnm	job_nha	job_sc	job_admin	job_clean	job_gm	job_other
— High	0.018	0.012	0.007	0.008	0.012	0.026	-0.004	-0.021	0	-0.005	0.018
■ Mean	0.0065	0.0021	-0.0071	-0.038	-0.0013	0.014	-0.0105	-0.036	-0.0159	-0.0166	-0.0105
— Low	-0.005	-0.008	-0.021	-0.085	-0.014	0.002	-0.017	-0.051	-0.032	-0.028	-0.039

Notes: the red dot reports the point estimate of the regression coefficient from a regression using the standardised engagement score as outcome variable. The 'High' and 'Low' values and corresponding whiskers in the plot report the upper and lower limits of the 90% confidence interval of the parameter estimate. Specifically, the coefficient is meant to be statistically significant from zero if the whiskers do not change their sign (negative/positive) regarding the lower and upper bound of the confidence interval.

When we look at organisational tenure, we find as well a U-shaped pattern with engagement decreasing as organisational tenure increases, but it levels after about 12 years of tenure and then shows an increase in engagement again.

Figure 3.5: Occupational factors – organisational tenure
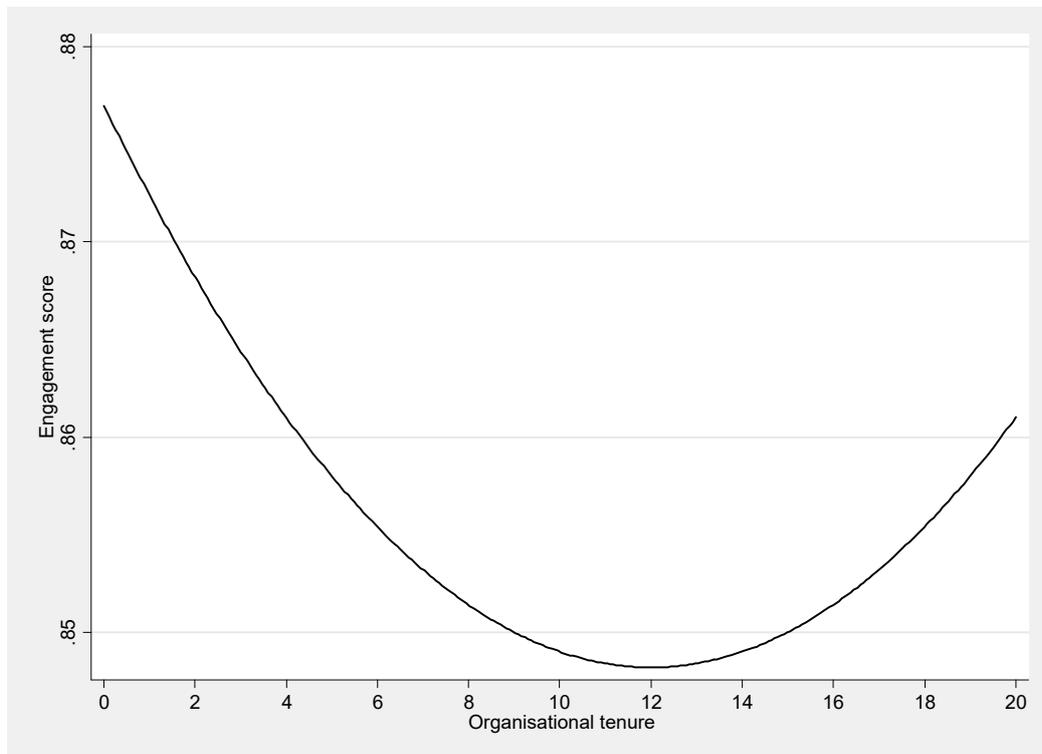
Notes: figure shows the plot of the coefficients of organisational tenure and the square of organisational tenure as reported in table E.2 in the Appendix.

3.2.3. Health and lifestyle factors

Looking at health factors, figure 3.6 reveals that statistically, the number of musculoskeletal and chronic conditions is not significantly associated with engagement. However, we do find that mental health problems are negatively associated with engagement in our sample, with the effect relatively large compared to all others. [21]

Regarding lifestyle factors we find no statistically significant association between BMI and sleep duration but do find that individuals suffering from lower levels of sleep quality report lower levels of engagement using our engagement indicator (Figure 3.7).

Figure 3.6: Health factors
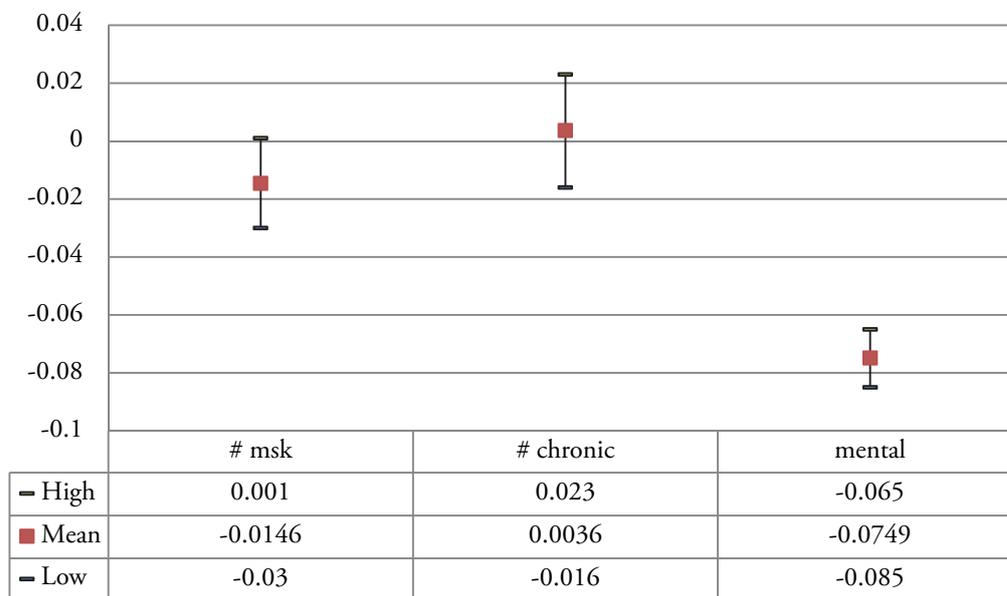
	# msk	# chronic	mental
— High	0.001	0.023	-0.065
■ Mean	-0.0146	0.0036	-0.0749
— Low	-0.03	-0.016	-0.085

Notes: the red dot reports the point estimate of the regression coefficient from a regression using the standardised engagement score as outcome variable. The 'High' and 'Low' values and corresponding whiskers in the plot report the upper and lower limits of the 90% confidence interval of the parameter estimate. Specifically, the coefficient is meant to be statistically significant from zero if the whiskers do not change their sign (negative/positive) regarding the lower and upper bound of the confidence interval.

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[21] Appendix D describes in more detail how mental health is measured in the survey.

Figure 3.7: Lifestyle factors

	bmi_under	bmi_owt	bmi_ob	sl6	sl9	sq
▬ High	0.01	0.018	0.016	0.019	0.018	-0.02
■ Mean	-0.0008	0.0046	0.0025	0.0072	0.005	-0.033
▬ Low	-0.012	-0.009	-0.011	-0.004	-0.008	-0.046

Notes: the red dot reports the point estimate of the regression coefficient from a regression using the standardised engagement score as outcome variable. The 'High' and 'Low' values and corresponding whiskers in the plot report the upper and lower limits of the 90% confidence interval of the parameter estimate. Specifically, the coefficient is meant to be statistically significant from zero if the whiskers do not change their sign (negative/positive) regarding the lower and upper bound of the confidence interval.

3.2.4. Personal factors

When looking at personal factors in our sample we find that having children and providing care of relatives is associated with higher levels of engagement, although statistically, the effects are not significantly different from zero. In contrast, people who report lower levels of life satisfaction report, on average, lower levels of engagement and the effects are statistically significant. The magnitude of the effect is similar to being at risk of mental-health issues, which is probably not surprising as both measures may measure, to some degree, mental ill-health.

Figure 3.8: Personal factors

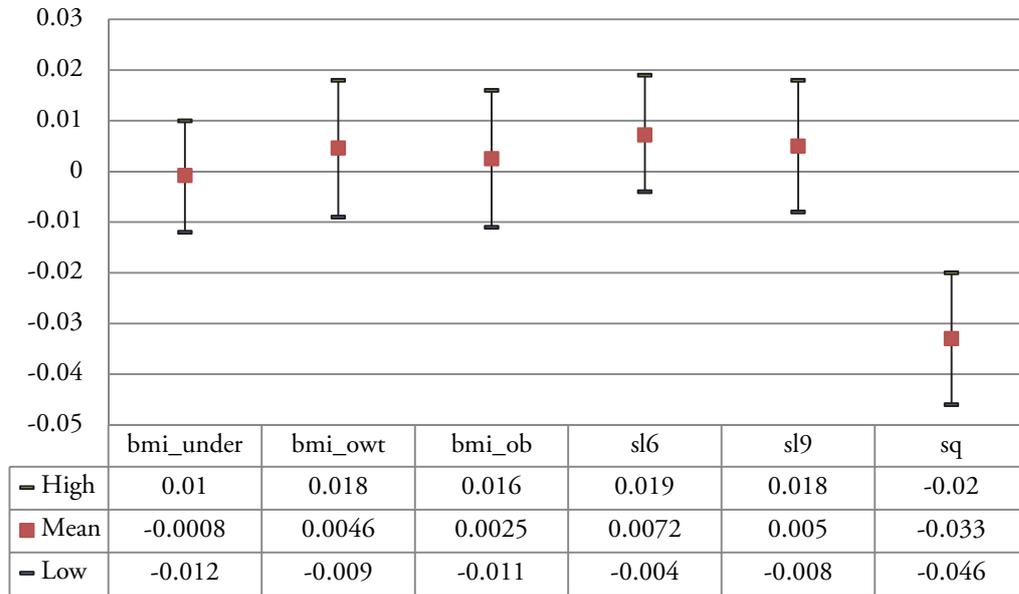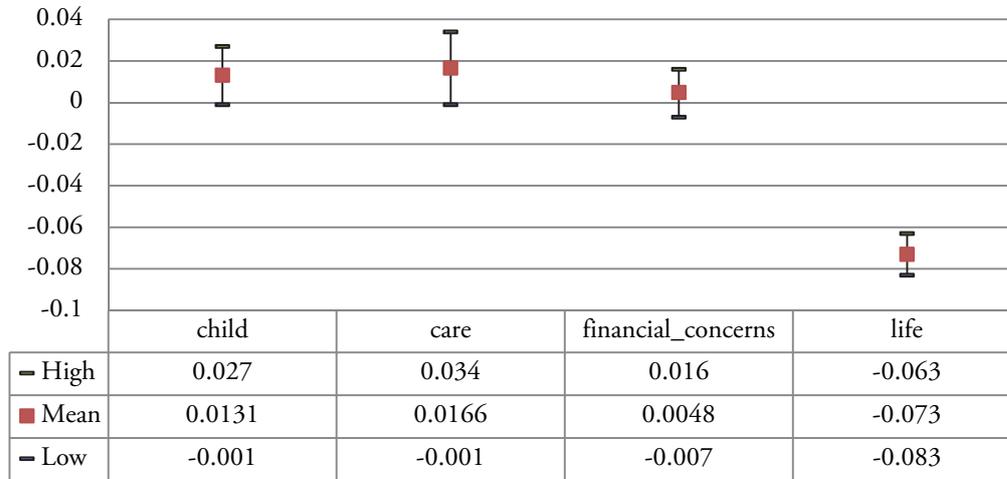|	child	care	financial_concerns	life
High	0.027	0.034	0.016	-0.063
Mean	0.0131	0.0166	0.0048	-0.073
Low	-0.001	-0.001	-0.007	-0.083

Notes: the red dot reports the point estimate of the regression coefficient from a regression using the standardised engagement score as outcome variable. The 'High' and 'Low' values and corresponding whiskers in the plot report the upper and lower limits of the 90% confidence interval of the parameter estimate. Specifically, the coefficient is meant to be statistically significant from zero if the whiskers do not change their sign (negative/positive) regarding the lower and upper bound of the confidence interval.

3.2.5. Work environment

Several factors related to the work environment in our sample are associated with the engagement indicator used. For instance, employees that report they have flexible hours and can have the flexibility to work from home when needed report higher levels of engagement than employees who do not have that opportunity.[22]

In addition, we find that employees who report having a lack of control (control) and are not sure about their role's responsibility (role) report lower levels of engagement. The same applies for employees reporting high levels of workplace stress (demand), employees that have a lack of peer support (peer support) at the workplace, who are bullied (bullied) and have strained relationships at work (strained relations). Overall, individual work-environment effects are among the strongest, together with mental-health risks. In particular, being bullied is strongly negatively associated with engagement.

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[22] Note that roughly one quarter of the respondents indicate that they have the opportunity to work from home or flexible hours.

Figure 3.9: Work environment

	home_flexi	control	role	demands	peer support	strained relations	bullied
High	0.029	-0.044	-0.051	-0.01	-0.057	-0.041	-0.083
Mean	0.0178	-0.0581	-0.0652	-0.0227	-0.0745	-0.0549	-0.0958
Low	0.006	-0.072	-0.08	-0.035	-0.092	-0.069	-0.109

Notes: the red dot reports the point estimate of the regression coefficient from a regression using the standardised engagement score as outcome variable. The 'High' and 'Low' values and corresponding whiskers in the plot report the upper and lower limits of the 90% confidence interval of the parameter estimate. Specifically, the coefficient is meant to be statistically significant from zero if the whiskers do not change their sign (negative/positive) regarding the lower and upper bound of the confidence interval.
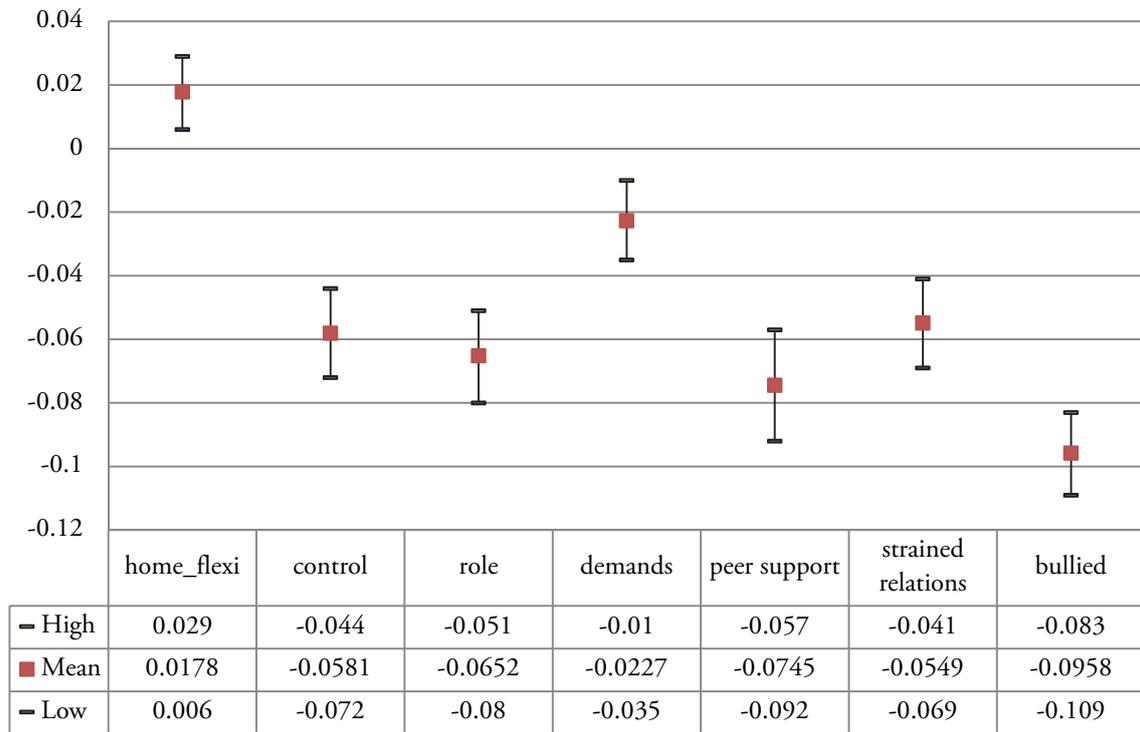
3.2.6. Health and well-being offers

Finally, we investigate the association between health and well-being interventions, as well as specific leadership interventions, and engagement. To that end we use the total number of interventions in different categories (e.g. general NHS Health check, physical and mental health, leadership) the employee is aware of as a predictor of engagement.

Specifically, we find that in our sample, health organisations that offer health checks such as the NHS Health check show on average more engaged employees on our engagement indicator. Also, offering more interventions related to physical activity (e.g. access to physiotherapist), seem to increase the levels of engagement. While the number of mental-health interventions does not seem statistically to be significantly associated with engagement, offering more leadership interventions (e.g. training to senior leadership) is associated with higher levels of engagement across NHS employees.[23] The mechanism behind the physical and general health interventions at work could be that employers who signal caring about their employees in the form of offering various types of interventions may trigger higher levels of engagement from their employees. In addition, the leadership-development interventions to leaders and

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[23] See a description of the included interventions for each category in Appendix B.

senior management are associated with higher levels of employee engagement. In line with previous research, these leadership-development interventions may trigger an improvement of the psychosocial work environment, and hence have a positive effect on employees' work-culture support and organisational alignment, which positively affects their job satisfaction and work engagement (see Biggs *et al.*, 2014).

Figure 3.10: Health and well-being offers

	hc_offer	p_offer	mh_offer	l_offer
▬ High	0.036	0.03	0.017	0.021
■ Mean	0.0242	0.0155	0.0013	0.0093
▬ Low	0.012	0.001	-0.015	0.0001

Notes: the red dot reports the point estimate of the regression coefficient from a regression using the standardised engagement score as outcome variable. The 'High' and 'Low' values and corresponding whiskers in the plot report the upper and lower limits of the 90% confidence interval of the parameter estimate. Specifically, the coefficient is meant to be statistically significant from zero if the whiskers do not change their sign (negative/positive) regarding the lower and upper bound of the confidence interval.

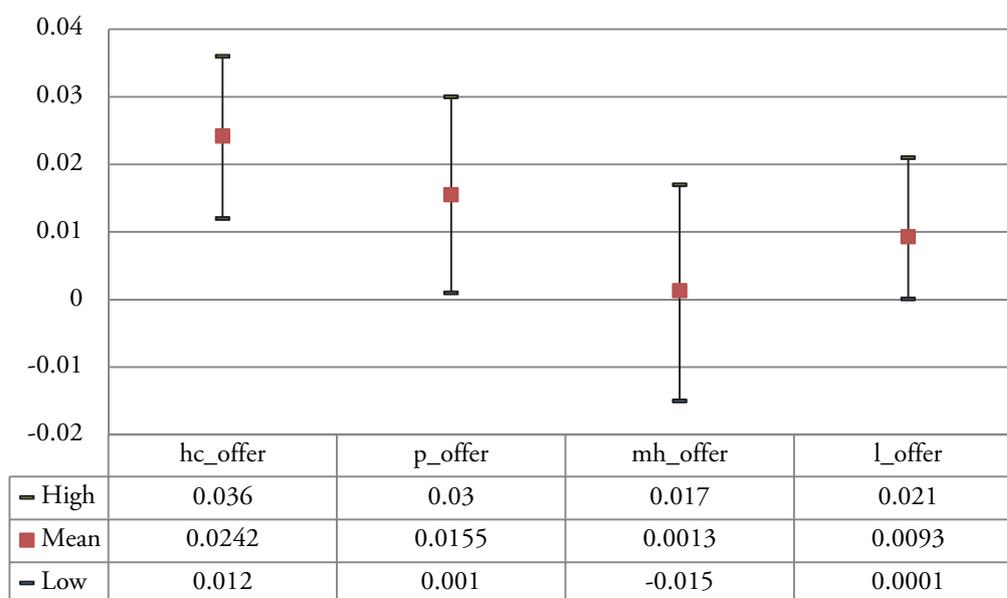## 3.3. Employee engagement and individual and organisational outcomes

Using employee engagement as predictor variable, a set of associations between engagement and different positive outcome measures are reported in Table 3.2 Specifically we look at four different outcome measures:

1. Absenteeism and presenteeism
2. Staff turnover
3. Patient satisfaction
4. Financial performance.

For instance, at the individual level, we use the Work Productivity Activity Impairment (WPAI) scale for a metric to capture absenteeism and presenteeism at the workplace. In addition we also use self-reported information from the organisations to determine high levels of absenteeism. Furthermore, we also use

sickness absence rates data provided by the NHS health organisations as an outcome measure. To investigate the link between employee engagement and patient satisfaction we use the overall satisfaction score from the Care Quality Commission (CQC) patient surveys. On financial performance, we apply specific measures. Firstly, the self-reported financial situation of the organisation (e.g. measured on a 5-time scale from 1 – very bad to 5 – very good). Secondly, we use NHS account data for Foundation trusts and trusts, using the metric on the operational surplus/deficit. Similar to the analysis presented in the previous section, we apply Ordinary Least Squares (OLS) to estimate the associations between employee engagement and outcomes at the individual and organisational level. All variables are standardised. Table 3.2 and 3.3 include the findings of the analysis.

The findings reported in Table 3.2 suggest that engagement in our sample is associated with lower levels of absenteeism and presenteeism, all else equal. This holds for all measures, either at the individual or the organisational level. Hence, this is robust by either using sickness absence data directly from the NHS, or when using self-reported information from the NHS Healthy Workforce survey organisational assessment questionnaire. Interestingly, higher levels of employee engagement are also associated with an organisation that finds staff turnover as a substantial risk to the organisation.

Furthermore, Table 3.3 suggests that higher levels of engagement as defined by our engagement indicator are positively associated with a higher score in patient satisfaction surveys. In addition, in our sample of NHS organisations higher levels of employee engagement are associated with organisations reporting a better financial situation, but also interestingly those with a better operational surplus, compared to organisations with lower levels of engagement. These findings suggest that engagement is potentially not only associated with lower absence rates or better quality of care, but also better and more efficient operational management.

Table 3.2 Employee engagement and the association with absenteeism, presenteeism and turnover

Outcome variables:	(1) WPAI: absenteeism	(2) NHS: sickness absence	(3) WPAI: presenteeism	(4) Sickness absence (self-reported)	(6) High turnover
Beta	-0.0304	0.0387	-0.0633	-0.2073	-0.0481
se	(0.016)*	(0.017)**	(0.013)***	(0.014)***	(0.012)***
Level of outcome:	Individual	Organisation	Individual	Organisation	Organisation

Source: Authors' calculations

Notes: robust standard errors (se) in parentheses; *** p<0.01, ** p<0.05, * p<0.1. Analysis based on the combined NHS Healthy Workforce and BHW survey. Rows Beta and Se report the standardized coefficient and corresponding standard error from a regression using the standardized engagement score as predictor variable. Note that WPAI scale is on the employee level and provided in the employee health assessment. It measures the percent of working time lost due to either absenteeism or presenteeism. The NHS sickness absence uses data from the NHS on the rate of annual sickness absence. The outcomes measured in column (4) and (5) come from the organisational assessment of HWS and BHW where organisations are asked whether sickness absence or high staff turnover are an issue in the organisation. Additional control variables include the operational surplus in the previous year (2015) and the total number of employees per organisation. Note that the analysis at the organisational level is weighted by the number of responses by employees.

Table 3.3 Employee engagement and the association with patient satisfaction and financial performance

Outcome variables:	(1) Overall patient satisfaction	(2) Self-reported: financial situation	(3) Operational surplus/deficit
Beta	0.0501	0.2556	0.0782
se	(0.013)***	(0.008)***	(0.010)***
Level of outcome:	Organisation	Organisation	Organisation

Source: Authors' calculations

Notes: robust standard errors (se) in parentheses; *** p<0.01, ** p<0.05, * p<0.1. Analysis based on the combined NHS Healthy Workforce and BHW surveys. Rows Beta and Se report the standardized coefficient and corresponding standard error from a regression using the standardized engagement score as predictor variable. The overall patient satisfaction values are provided by the CQC for acute and mental health trusts. The HWS and BHW organisational assessment questionnaire asks each organisation about their (self-reported) financial situation based on a scale from 1 (very bad) to 5 (very good). We also complement this self-reported analysis with data from the NHS account data for Foundation trusts and trusts using the operational surplus/deficit as comparable measure. Note that the self-reported financial situation information and the organisational surplus/deficit measure are correlated with a coefficient of 0.76. Additional control variables include the operational surplus in the previous year (2015) and the total number of employees per organisation. Note that the analysis at the organisational level is weighted by the number of responses by employees.

4. Conclusions

This report uses the NHS Healthy Workforce survey conducted in 2016 among different NHS trusts and health organisations in order to investigate employee engagement in the NHS. The data has been complemented with additional data collected through Britain's Healthiest Workplace survey, as well as other publicly available NHS data.

How does the NHS compare with other sectors?

Comparing the NHS to other sectors in the UK, the findings suggest that employee engagement in the NHS in our sample is lower than in some UK sectors (e.g. media and telecommunications, professional services) but better than in others (e.g. financial services or logistics). The organisations in our sample included health organisations that had received funding from NHS England to improve health and well-being (ten), that had been prompted to participate by NHS England (nine) and organisations that had opted into Britain's Healthiest Workplace (nine). This benchmarking is useful because at times the performance of the NHS is seen in isolation. What does it mean to have certain levels of staff engagement in the NHS? What are the levels that we should aspire to? What does good look like? Our data shows that staff engagement in the NHS is in many ways similar to other large employers with a similar demographic make-up. However, NHS organisations are typically more average performers compared to other employers on which we have data. This raises a more normative question around where NHS organisations should be with regards to staff engagement. There could also be a wider debate around the representativeness of our sample. It could be argued that many health organisations in our sample could be some of the better performing health organisations. For instance, no trusts in 'special measures' participated in the surveys.

Groups of employees differ in engagement levels

When examining factors associated with employee engagement in the NHS using our chosen engagement indicator, the report suggests that a number of demographic factors are associated with levels of engagement, including gender and age. For instance female employees tend to report higher levels of engagement in our sample, whereas engagement is decreasing with age but levels in the mid-50s and is increasing again towards retirement, though it never return to the levels reached in early age.

In addition, employees working in different NHS occupations report different levels of engagement in our sample. For instance, among employees in administration and general management, levels of engagement tend to be lower on average. In contrast, employees in medical and dental occupations, and nursing and healthcare assistants tend to report higher levels of engagement, all else equal. This may be because

frontline personnel may see their role more as a calling than support staff and managers. They may also face different work environments or organisational pressures. Organisational tenure seems to matter as well in our sample. Interestingly, engagement using the engagement indicator tends to be highest in the first two years and then steadily declines until about 12 years of tenure. Then, engagement seems to rise again. This may suggest a selection effect, as those employees staying longest may be the most engaged and most identify themselves with the organisation. A final explanation could be that older workers tend to report higher levels of well-being in general, which could impact on engagement as well.

The data from our sample points to a diverse staff with differing needs. This is not just a valid observation for staff engagement but also general health and well-being of the NHS population. Our data also shows that prevalence of obesity, mental-health problems and high blood pressure varies between staff groups (e.g. tends to be high in nursing, general management and ambulance workers). Similarly, lifestyle factors such as physical activity levels, for example, differ substantially between age groups. Older groups tend to become less active.[24] Some of these differences are highlighted in more detail in the Appendices.

What can be done about it according to our data?

From our last observation, it follows that a 'one size fits all' approach is unlikely to be the answer. Staff engagement in this research differs among the groups that make up the NHS population that we surveyed. Some approaches aimed at improving staff engagement may need to be targeted on specific groups.

Furthermore, the work environment matters. The empirical findings suggest that employees who have flexible hours and can occasionally work from home report higher levels of engagement. This suggests that there is a value in understanding the demand for flexible working among NHS staff and taking more proactive steps to accommodate some of these demands. This may help with managing home-life balance, dealing with working antisocial hours, and indeed managing other caring responsibilities. Also, employees in our sample who report high levels of workplace stress, a lack of control, and who are not clear about their role, have lower levels of engagement. Employees who report being bullied or have a lack of peer support in the workplace tend to be less engaged on average. From the data, we were also struck by the relatively high incidence of mental-health problems compared to other populations surveyed in a similar way in specific groups of NHS employees (see Appendices).[25]

Nonetheless, NHS organisations under similar pressures perform quite differently on some of these metrics. This suggests that organisational context and culture play an important role. Here, the Boorman Review (Boorman *et al.*, 2009) would point to the importance of leadership setting the right tone, line managers being trained to support the health and well-being of staff and the organisation reporting internally and externally on human capital. Also, Boorman found that there should be zero tolerance towards bullying and violence in the NHS. Bullying is reported by a significant number of the population. In the NHS Healthy Workforce survey, the proportion of NHS staff that reports being bullied at work 'at least some times' is 12 per cent, compared to 6.5 per cent on average across employers

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[24] See Appendix F for detailed information.

[25] See Table F.3 in Appendix F.

in BHW. Five per cent of NHS staff in the same survey report having experienced violence in the last 12 months. There may also be opportunities to look at wider systemic changes such as putting human capital at the forefront of inspections by the Care Quality Commission and indeed the Sustainability and Transformation Partnerships (STPs)[26] currently being developed in England. This may also require better human resource data analytics and better staff surveys more focused on staff engagement and staff health and well-being than are currently the norm in many NHS settings.

Finally, offering certain health and well-being interventions such as health checks and those focused on physical activity are also associated with higher levels of engagement in our research. Currently a relatively small percentage of staff seems to be aware of interventions. For most interventions awareness levels are between 20 and 35 per cent of staff (using data from the NHS Healthy Workforce survey). Fewer still participate in the programmes (in a range of 1–10 per cent for the ten most common programmes/interventions). It can be assumed that some of the populations that are being targeted will not participate at all in interventions. Our analysis of BHW data suggests that branding and messaging of interventions can be important in creating greater awareness. If you offer interventions, make sure that staff are aware of and can use the intervention, and that employers drive participation in those interventions. Such participation can also improve resilience and foster a greater team identity, which is often linked to better staff engagement.

Making the business case

Higher levels of engagement are associated with lower levels of presenteeism, as well as lower sickness absence rates. In addition, health organisations with a relatively high level of engagement among their workforce tend to report a better financial situation and have better ratings among patient quality surveys. Though it is impossible to be fully confident of the causal direction between these variables, the academic literature suggests that driving higher staff engagement leads to better organisational outcomes. As such, it is important to keep making this point to key policy makers and decision makers in the service, starting possibly with finance directors and chief executives. The other challenge will be to foster a culture of better data collection and evaluation in NHS organisations to ensure that we have a more comprehensive picture of health and well-being in NHS staff, and also a better understanding of which initiatives have made a difference to the individuals involved and have led to better organisational outcomes.

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[26] The NHS and local councils have formed partnerships in 44 areas covering all of England, to improve health and care. Each area has developed proposals built around the needs of the whole population in the area, not just those of individual organisations (see https://www.england.nhs.uk/integratedcare/stps/, accessed December, 2017).

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Appendix A: HWS sampling and response rates

Sampling and response rates in the NHS Healthy Workforce Survey

Table A.1 provides an overview of the main characteristics of the survey and the participants. In total, 19 organisations took part in the survey, with a combined headcount of 105,838 employees. According to the organisations, the survey was distributed to nearly all members of staff (91,872) through staff emails, notices on the intranet and other channels. When the survey closed, 8,383 staff members had started the survey, of which 7,246 had completed the survey, at an average of 86.4 per cent. In the experience of the research team, this is a relatively high level of completion for a voluntary survey that took respondents approximately 25 minutes to complete.

The overall response rate based on the headcount of survey recipients provided by the organisations was 7.9 per cent. This may be a conservative estimate as many organisations indicated that all staff received the link to the survey. However, if the survey did not actually reach all staff, the response rate would be higher. In addition, the research team calculated minimum response rates for all participating organisations required to be included in the analysis, which all organisations reached.

Table A.1: Survey distribution, responses and completion

Survey responses	Count
Total number of organisations (including NHS England)	19
Total number of employees across organisations (headcount)	105,838
Total number of employees to whom survey was distributed	91,872
Total number of surveys started	8,383
Total number of completed responses	7,246
Response rate based on distribution	7.9%
Completion rate among those who started	86.4%

Two groups of health organisations participated in the survey. The Leadership group consisted of organisations participating in the new initiative. These organisations have received some financial and advisory support from NHS England and other stakeholders to develop or implement new health and well-being initiatives. The second group consisted of organisations not participating in the programme. This group was selected through an exploratory matching exercise. Based on a number of traits, such as sickness absence rates, staff turnover and questions from the NHS staff survey (e.g. level of satisfaction

with 'The support I get from my immediate manager'), the participating organisations were matched to non-participating organisations to allow for a more rigorous exploration of the differences between these two groups. While this matching was based on actual traits, it is important to mention upfront that the matching did not take into account all relevant traits and thus does not allow for a quasi-experimental analysis of the data. In addition, not all participating organisations have a direct match among the non-participating organisations. Therefore, the matching was only used for exploratory purposes. Table A.2 provides an overview of the specific response rate by participating NHS organisations in both the NHS Healthy Workforce and BHW surveys.

Table A.2: Response rate by organization

Organisation	# Employees	# Respondents	Rate
Birmingham Children's Hospital	3,800	357	9.39%
Bradford District	2,920	321	10.99%
Epsom and St. Helier	4,858	122	2.51%
Northumbria	9,952	416	4.18%
Nottingham University Hospitals	13,874	741	5.34%
Rotherham CCG	113	63	55.75%
Sheffield Teaching Hospital	15,693	715	4.56%
Walton Centre	1,319	100	7.58%
University Hospital Southampton	10,628	714	6.72%
West Midlands Ambulance	4,349	79	1.82%
York Teaching Hospital	8,503	429	5.05%
Great Ormond Street	4,152	137	3.30%
Rotherham, Doncaster and South Humber	3,573	129	3.61%
Milton Keynes CCG	76	38	50.00%
Northern Devon	4,500	569	12.64%
South Central Ambulance	3,199	549	17.16%
NHS England	4,885	1,148	23.50%
Sandwell and west Birmingham	6,995	299	4.27%
East Cheshire	3,200	306	9.56%
Salisbury NHS Foundation Trust	4,000	289	7.23%
Whittington Health	4,500	180	4.00%
Greater Manchester West MH	3,000	191	6.37%
Basildon & Thurrock University Hospitals	4,742	285	6.01%
Taunton & Somerset	4,271	213	4.99%
Gloucestershire Hospitals	7,300	383	5.25%
The Pennine Acute Hospitals	9,052	162	1.79%
Wrightington, Wigan and Leigh	4,976	338	6.79%
Hampshire Hospitals	5,878	102	1.74%

Representativeness

In order to understand the quality of the findings from analyses based on the survey data, it is important to understand how representative the survey is in terms of the employees (i.e. the representativeness of the

sample). That is, it is important to understand whether those employees who responded to the survey were systematically different from those in the wider NHS.

Previous work on engagement in the NHS has been based on the NHS Staff survey, which aims to be a representative sample of the NHS staff. Table A.3 compares the background information among respondents in both surveys in 2016. We use the NHS Healthy Workforce survey to compare as we do not ask detailed questions on NHS occupation groups in the BHW survey. Nonetheless, we would expect the BHW survey to behave similarly to the NHS Healthy Workforce survey.

Table A.3: Comparison between NHS Healthy Workforce and Staff Survey – background information

Variable	Description	NHS HWS	NHS SS
Gender	Female	78%	78%
	Male	22%	22%
Age	16-20	1%	1%
	21-30	18%	14%
	31-40	22%	20%
	41-50	29%	28%
	51-65	29%	35%
	66+	1%	2%
Ethnicity	White	93%	86%
	Mixed	1%	1%
	Asian	3%	7%
	Black	2%	5%
	Other	1%	1%
Tenure	<1 years	12%	9%
	1-2 years	13%	14%
	3-5 years	19%	15%
	6-10 years	18%	19%
	11-15 years	31%	16%
	15+ years	7%	27%
Occupation	Allied Health Professionals	23%	21%
	Medical and Dental	4%	6%
	Ambulance (operational)	5%	4%
	Public Health	1%	1%
	Commissioning	5%	0%
	Registered Nurses/Midwives	25%	28%
	Nursing/Healthcare assistants	5%	7%
	Social care	0%	0%
	Admin & Clerical	24%	24%
	Maintenance	1%	3%
	General management	7%	6%

Source: Authors' calculations based on NHS Healthy Workforce (HWS) and (unweighted) NHS Staff Survey (SS) 2016 data.

Overall, the gender distribution in both surveys is equal, with roughly about 78 per cent of respondents being female. The survey population in the NHS Healthy Workforce survey tends to be slightly younger

than in the staff survey, with the group of 21 to 30 year olds larger in the former (18 and 14 per cent) and the proportion of 51 to 65 year olds larger in the latter (29 and 35 per cent). In addition, the NHS Healthy Workforce survey has a larger proportion of respondents reporting to have a white background (93 compared to 86 per cent). On organisational tenure, the respondents in the NHS Staff survey tend to serve slightly longer in the organisation than in the NHS Healthy Workforce survey, but this could be linked to the fact that in the latter the average age is slightly lower among respondents. Interestingly, the occupational distribution among respondents looks very similar in both surveys, with the NHS Healthy Workforce having a small proportion more respondents that report being Allied Health Professionals (23 and 21 per cent), while in the NHS Staff survey the proportion of Registered Nurses and Midwives is slightly larger (28 to 25 per cent). In general, the two survey populations tend to be very similar among key background demographic indicators.

Appendix B: Full list of interventions offered

Full list of interventions included in the survey

1. **Health Check**

   ☐ The NHS Health Check

   ☐ Other on-site health checks

   ☐ Health and well-being awareness events

   ☐ Clinical tests (e.g., blood glucose, blood pressure) not part of any health checks

   ☐ Disease management (management of long-term conditions such as diabetes, asthma, chronic obstructive pulmonary disease)

   ☐ Pre-commencement assessments

   ☐ Support in returning to work after illness

   ☐ Employee assistance programme

   ☐ Nurse advice line

   ☐ Occupational health/safety programme

   ☐ Other (please specify) [*open text field*]

2. **Physical health**

   ☐ On-site physiotherapy

   ☐ On-site occupational therapy

   ☐ On-site yoga classes

   ☐ On-site Pilates classes

   ☐ Other (please specify) [*open text field*]

   Smoking

   ☐ Smoking cessation information

   ☐ Smoking cessation programme

   ☐ Discounted/free nicotine patches or medication provided by your organisation

☐ Discounted/free smoking cessation programmes provided by your organisation

☐ Other assistance to quit smoking or other tobacco use (please specify)[*open text field*]

Alcohol

☐ Information on problem drinking and options on seeking help

☐ Alcohol counselling

☐ Alcohol support groups

☐ Other assistance related to problem drinking (please specify) [*open text field*]

Nutrition

☐ Healthy eating information

☐ Healthy food alternatives at canteens

☐ Healthy food alternatives in vending machines

☐ Healthy food provision for out-of-hours staff

☐ Means to prepare or heat up your own food

☐ Fresh fruit and vegetables in the workplace

☐ Dietician/nutritionist services

☐ Access to fresh drinking water (other than tap water)

☐ Other initiatives to improve access to healthy food (please specify) [*open text field*]

Physical activity

☐ On-site gym or fitness facility

☐ Offsite gym / health club membership discount

☐ Physical activity challenge

☐ Unpaid fitness breaks

☐ Paid fitness breaks (fitness classes)

☐ Unpaid massage therapists on-site

☐ Paid massage therapists on-site

☐ Bicycle storage facilities

☐ Bicycle purchase scheme

☐ Locker room with showers available at worksite

☐ Other exercise opportunities (walking trails, inviting staircases, etc.) (please specify) [*open text field*]

3. **Mental health and well-being**

   - ☐ Mental health awareness training
   - ☐ Stress management information
   - ☐ Psychological resilience training
   - ☐ On-site counselling
   - ☐ Mindfulness programme
   - ☐ On-site meditation sessions
   - ☐ On-site pastoral care
   - ☐ Mediation (conflict resolution)
   - ☐ Work-life balance programmes
   - ☐ Other (please specify) [*open text field*]

4. **Line management training**

   - ☐ Engaging leaders programme
   - ☐ Engaging managers programme
   - ☐ Management mental health awareness training
   - ☐ Management stress awareness training
   - ☐ Other line management training aimed at improving health and well-being (please specify) [*open text field*]

Appendix C: Work Productivity and Activity Impairment Questionnaire

In the NHS Healthy Workforce Survey and the BHW survey, the general health Work Productivity and Activity Impairment (WPAI-GH) has been used. The WPAI provides an estimate of employee absenteeism based on absence over the week prior to the survey. This is the measure of absenteeism due to health problems and is based on employee self-reporting. Absenteeism is estimated by the answer to the following question:

- During the past seven days, how many hours did you miss from work because of your health problems? Include hours you missed on sick days, times you went in late, left early, etc., because of your health problems. Do not include time you missed to participate in this study.

To measure presenteeism – and therefore to obtain a sense of reduced productivity at work – the WPAI-GH asks six questions (including the question on absenteeism above). Based on the numerical answers, a number of estimates can be made that assess productivity loss when multiplied by employee wages. In short, to capture presenteeism, the WPAI takes the total number of hours an employee has actually worked during a week (taking absenteeism and other loss of work into account) and multiplies this measure by the 'Percent of self-estimated level of impact of health problems on productivity during the past seven days'. To illustrate how the information from the WPAI results in a monetary productivity loss, we show the steps below.

Presenteeism is indicated by the answers to the following questions:

- During the past seven days, how many hours did you actually work?
- During the past seven days, how much did your health problems affect your productivity while you were working? (Think about days you were limited in the amount or kind of work you could do, days you accomplished less than you would like, or days you could not do your work as carefully as usual. If health problems affected your work only a little, choose a low number. Choose a high number if health problems affected your work a great deal.)

Appendix D: Mental health

Mental health and well-being is a very broad concept that is influenced by and related to a wide range of factors, such as stress, financial concerns, physical health, financial strain and many others. The former aspects of stress, organisational culture, leadership, and bullying are all likely to contribute to the mental health and well-being of staff (Hafner *et al.*, 2015).

Increasingly, mental health is being recognised as one of the key drivers of general health and well-being, and has been found to substantially impact productivity in the workplace.[27] The multifaceted nature of mental health and well-being means that it is not easy to measure or capture in a survey. To get a sense of the mental health of employees in the NHS, the study therefore relies on the short version of the Warwick-Edinburgh Mental Well-being Scale (SWEMWBS). The SWEMWBS was developed within the NHS and has been extensively tested both within and outside of the NHS. The following seven statements constitute the SWEMWBS and together provide a measure of mental health:

- I've been feeling optimistic about the future
- I've been feeling useful
- I've been feeling relaxed
- I've been dealing with problems well
- I've been thinking clearly
- I've been feeling close to other people
- I've been able to make up my mind about things

The scores to the statements, based on five answer categories (None of the time; Rarely; Some of the time; Often; All of the time), can be combined to provide an overall figure of mental health and well-being, with a specific cut-off value below which people are deemed at risk of mental health problems.[28]

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[27] For information related to the WEMWBS, as well as links to validation studies, see: http://www2.warwick.ac.uk/fac/med/research/platform/wemwbs/

[28] The cut-off values are based on previous studies of national averages that have determined which scores reflect poor mental well-being: e.g. Stewart-Brown S., P.C. Samaraweera, F. Taggart, N.B. Kandala & S. Stranges. 2015. 'Socioeconomic gradients and mental health: implications for public health.' *British Journal of Psychiatry*. 206(6). p.461–5. This report follows the cut-off values used to compare SWEMWS scores to the national average developed by NEF Consulting. As of 14 November 2016: http://www.nef-consulting.co.uk/our-services/strategy-culture-change/well-being-at-work/

Appendix E: Additional information – statistical analysis

Table E.4: Description of variables

Factor	Description
Education	Low (no formal secondary education); Medium (with secondary education); High (with university degree)
Job	MD (medical and dental); Amb (Ambulance operational); Ph (Public Health); Com (Commissioning);Rnm (Registered Nurses and Midwives); Nha (Nursing or healthcare assistants); Sc (Social care); Admin (Administrative); Clean (maintenance); GM (General management)
Job satisfaction	Measured on a 5-point scale (strongly disagree to fully agree)
HSE: control HSE: role HSE: unrealistic demands HSE: peer support HSE: strained relations HSE: bullied	Measured on a 5-point scale using the six items from the UK Health & Safety Executive (HSE) Management Standards Indicator tool[29]
#MSK	Number of reported musculoskeletal health problems during the last 12 months
#Chronic	Number of reported health conditions diagnosed by a GP during the last 12 months (including Allergy, Asthma, Heart attack, Diabetes, Cancer, Migraine and others)
# HC offer # Physical offer # Mental health offer # Leadership offer	Number of interventions offered by the organisation in each category (see Appendix B for more details)

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[29] https://warwick.ac.uk/fac/sci/med/research/platform/wemwbs/development/swemwbs/

Table E.5: Full regression output tables

Variables	(1) Beta	(2) Ci: low	(3) Ci: high	(4) Pval
Education: medium	-0.0044	-0.032	0.023	0.784
Education: high	0.0122	-0.019	0.043	0.507
Female	0.0263	0.015	0.038	0.001***
Ethnicity: Asian	-0.0067	-0.019	0.006	0.382
Ethnicity: Black	-0.0038	-0.018	0.010	0.638
Ethnicity: Mixed	0.0007	-0.009	0.010	0.899
Ethnicity: Other	-0.0011	-0.013	0.011	0.879
Age (year)	-0.0159	-0.022	-0.010	0.000***
Age^2	0.0001	0.000	0.000	0.002***
Income	-0.0998	-0.590	0.390	0.731
Income^2	0.0142	-0.035	0.064	0.629
Job: MD	0.0065	-0.005	0.018	0.328
Job: Amb	0.0021	-0.008	0.012	0.721
Job: Ph	-0.0071	-0.021	0.007	0.404
Job: Com	-0.0380	-0.085	0.008	0.175
Job: Rnm	-0.0013	-0.014	0.012	0.864
Job: Nha	0.0140	0.002	0.026	0.051*
Job: Sc	-0.0105	-0.017	-0.004	0.008***
Job: Admin	-0.0360	-0.051	-0.021	0.000***
Job: Clean	-0.0159	-0.032	0.000	0.103
Job: GM	-0.0166	-0.028	-0.005	0.023**
Job: Other	-0.0105	-0.039	0.018	0.532
HSE: control	-0.0581	-0.072	-0.044	0.000***
HSE: role	-0.0652	-0.080	-0.051	0.000***
Home Flexitime	0.0178	0.006	0.029	0.013**
Tenure	-0.0459	-0.079	-0.013	0.024**
Tenure^2	0.0468	0.021	0.072	0.004***
Working hours	0.0038	-0.010	0.018	0.643
Commute (minutes)	-0.0091	-0.023	0.005	0.281
Child	0.0131	-0.001	0.027	0.131
Carer	0.0166	-0.001	0.034	0.115
Financial concerns	0.0048	-0.007	0.016	0.476
Life satisfaction	-0.0730	-0.083	-0.063	0.000***
#MSK	-0.0146	-0.030	0.001	0.126
#Chronic	0.0036	-0.016	0.023	0.751
BMI: under	-0.0008	-0.012	0.010	0.900
BMI: overweight	0.0046	-0.009	0.018	0.566
BMI: obese	0.0025	-0.011	0.016	0.759
Sleep: less than 6 hours	0.0072	-0.004	0.019	0.295
Sleep: more than 9 hours	0.0050	-0.008	0.018	0.515
Sleep quality (lack of)	-0.0330	-0.046	-0.020	0.000***
Risk mental health	-0.0749	-0.085	-0.065	0.000***

Variables	(1) Beta	(2) Ci: low	(3) Ci: high	(4) Pval
HSE: unrealistic demands	-0.0227	-0.035	-0.010	0.004***
HSE: peer support	-0.0745	-0.092	-0.057	0.000***
HSE: strained relations	-0.0549	-0.069	-0.041	0.000***
HSE: bullied	-0.0958	-0.109	-0.083	0.000***
# HC offer	0.0242	0.012	0.036	0.002***
# Physical offer	0.0155	0.001	0.030	0.072*
# Mental health offer	0.0013	-0.015	0.017	0.892
# Leadership offer	0.0093	0	0.023	0.099*

Source: Authors' calculations

Notes: robust standard errors (Pval) in parentheses; *** p<0.01, ** p<0.05, * p<0.1. Analysis based on the combined NHS Healthy Workforce and BHW survey. Rows Beta and Pval report the standardized coefficient and corresponding p-values from a regression using the standardized variables as predictor variables. Ci low and Ci high represent the 90% confidence interval for beta.

Appendix F: Additional information

Table F.6: Clinical indicators by subgroups

Group	% overweight (BMI 25-30)	% obese (BMI >30)	% elevated risk blood pressure	% elevated risk cholesterol
Health Professionals	28%	17%	29%	3.6%
Medical and Dental	29%	10%	35%	5.2%
Ambulance (operational)	37%	31%	51%	2.8%
Commissioning	33%	23%	30%	3.9%
Registered Nurses and Midwives	30%	27%	42%	4.0%
Nursing or Healthcare Assistants	33%	34%	42%	4.4%
Wider Healthcare Team	31%	25%	25%	4.1%
General Management	33%	22%	32%	3.7%
Other	29%	28%	33%	4.3%
18–30	24%	17%	22%	0.7%
31–40	28%	22%	26%	1.8%
41–50	33%	26%	33%	3.7%
51–65	35%	28%	44%	7.6%
66+	57%	14%	43%	16.2%
Male	38%	20%	45%	5.0%
Female	29%	25%	29%	3.6%

Table F.7: Physical activity by subgroups

Group	High risk (<120 minutes per week)	Medium risk (120 – 149 minutes per week)	Low risk (≥150 minutes per week)
Health Professionals	27%	6%	67%
Medical and Dental	29%	5%	66%
Ambulance (operational)	34%	6%	60%
Commissioning	30%	7%	63%
Registered Nurses and Midwives	35%	7%	59%
Nursing or Healthcare Assistants	36%	5%	59%
Wider Healthcare Team	37%	6%	57%
General Management	32%	5%	63%
Other	31%	7%	62%
18–30	28%	5%	66%
31–40	30%	7%	63%
41–50	33%	6%	61%
51–65	37%	7%	56%
66+	51%	8%	41%
Male	28%	5%	67%
Female	34%	7%	59%

Table F.8: Mental health (at risk and not at risk) by subgroups

Group	% at risk	% not at risk
Health Professionals	18.1%	81.9%
Medical and Dental	14.1%	85.9%
Ambulance (operational)	24.0%	76.0%
Commissioning	21.7%	78.3%
Registered Nurses and Midwives	15.9%	84.1%
Nursing or Healthcare Assistants	22.2%	77.8%
Wider Healthcare Team	21.1%	78.9%
General Management	18.6%	81.4%
Other	19.7%	80.3%

Group	% at risk	% not at risk
18–30	21.4%	78.6%
31–40	20.3%	79.7%
41–50	20.4%	79.6%
51–65	15.7%	84.3%
66+	18.9%	81.1%
Male	19.8%	80.2%
Female	19.1%	80.9%