Institutional commitment among Allied Health Care Professionals in the British National Health Service

Roy, D., Weyman, A. K., Plugor, R., & Nolan, P. (2020). Institutional commitment among Allied Health Care Professionals in the British National Health Service. *Health Services Management Research*. Advance online publication. https://doi.org/10.1177/0951484820918513

Published in:
Health Services Management Research

Document Version:
Peer reviewed version

Health Services
Management Research

Institutional commitment among Allied Health Care Professionals in the British National Health Service.

Journal:	*Health Services Management Research*
Manuscript ID	HSMR-19-047.R2
Manuscript Type:	Primary Research
Keywords:	Age; Allied Healthcare Professionals; National Health Service; commitment to NHS; Job Demands; Job Satisfaction; Mediation analy

Abstract:	Because of a perceived decline in staff morale, the UK National Health Service (NHS) has begun to routinely assess the extent to which commitment to the NHS may aid in staff retention. While a number of studies have investigated the role of employee commitment in relation to staff turnover, no research to date has empirically tested if staff commitment to the NHS could protect job satisfaction from the effects of high job demands, and if this varies according to age. Using latent variable path analysis, this novel study examined this question among a national sample of Healthcare Professionals Allied to Medicine (AHPs) in the NHS. The results indicate that the negative effects of high job demands on job satisfaction were fully mediated by commitment to the NHS, but age mattered. Among the over 45's and over 55's, commitment to the NHS acted as an effective buffer against the negative effects of job demands on job satisfaction, but this effect was not as strong among the 35-44 age group. The broader policy implications of these findings are that age sensitive policies to support workforce retention are needed. Also, pro-social institutions who employ AHPs should develop policies for inspiring commitment to that institution, as it could help them with the demands of the job, and may even encourage more skilled workers to work longer.

Institutional commitment and aging among Allied Health Care Professionals in the British National Health Service.

Introduction

Awareness has never been higher of the need for sustained efforts to retain experienced staff working in the British National Health Service (NHS). It is an ageing workforce, as there are now 1.4 million more older workers over the age of 50 today compared to 15 years ago (1) in the United Kingdom (UK). While these demographic shifts mean a large cohort of workers may be exiting because they are reaching retirement age, there is an indication that some form of disaffection is also causing a range of professions to leave the NHS earlier than this (2). Understanding why skilled and experienced staff are leaving their NHS employment before retirement has become an urgent priority for healthcare managers. The British Medical Association (BMA) (3) has indicated that work demands, psychosocial factors and low morale may be factors hastening the departure of staff in all age groups, not just those close to retirement (4). This is understandable, given the background of rising unprecedented demands for care services, lack of resources, lack of flexibility and numerous fundamental structural reforms, such as the amalgamation of urgent and emergency care services (5). The situation is becoming more worrying as professions such as physiotherapists who are expert in keeping people active and physically fit, are reporting that the continued rise in job demands are causing them to be concerned about their own capacity to cope with their job as they age (6).

What makes this current research relevant and important for healthcare managers is that our sample comprises of Allied Healthcare Professionals (AHPs) who are under-researched when it comes to healthcare workforce retention literature, and yet they are the third biggest job family in health and care in England which includes (not exclusively) speech and language therapists, physiotherapists, occupational therapists, art therapists, counsellors,

pharmacists and psychologists. According to Barret and Robinson (7 p19) "*nurses and to a less extent GPs, are the focus of the overwhelming majority of studies, with scant coverage of the multitude of other staff groups*".

Because of this, there is not just a paucity of research about AHPs, there is also a gap in the literature more generally about positive models that may offer insights into staff retention, because stress or deficit models have tended to dominate the wellbeing at work literature (8). Moreover, we have little research evidence about the how ageing is implicated with these models. What research exists indicates that older AHPs may experience high job demands adversely because they suffer more acute pain, are more likely to change their job because of musculoskeletal disorders (MSDs) or injuries, and are two-and-a-half times more likely than their younger counterparts to take sick leave (9). Furthermore, Radford and Chapman (10) found Australian older workers, compared to younger workers, were influenced by different factors connected to retention and reported that older workers were more committed compared to their younger counterparts. Added to this, a number of research studies undertaken by Merali (11) indicate that NHS clinical and non-clinical managers take great pride in working for the NHS and they were committed to the altruistic values of the NHS. It would appear therefore that commitment, and job satisfaction continue to be important factors that help to retain these skilled workers (11, 12).

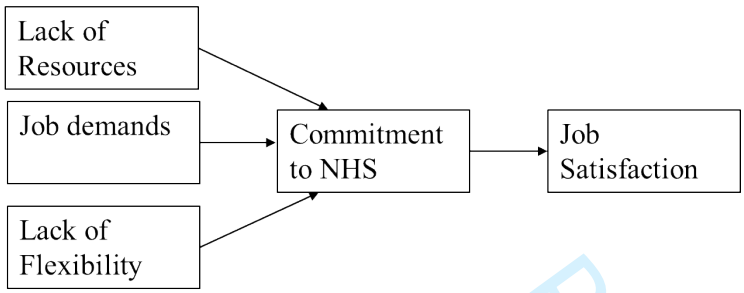
A short survey instrument did not exist prior to this study that would enable us to capture the multi-factorial determinants of staff retention in NHS. Because of this, the researchers took this opportunity to create a brief survey instrument. One of the goals of this research was consequently to create and test such an instrument that could have the potential to be employed at a later time by other researchers interested in NHS staff's work experiences. We hope this current research add new insights into the role of the intrinsic, satisfying components of work to existing literature and how they relate with the negative impact of

high jobs demands. Given the available related research about older health care workers (10), one would expect to find stronger commitment and satisfaction among older workers, perhaps because of their longer service. This is one of the key questions we address in this current paper.

Conceptual framework

Figure One here

Latent Path Analysis Model



Retention is a multi-factorial problem, and high workload or job demands, stress, work/life balance, lack of flexible working, and job dissatisfaction are often cited as determinants of staff retention in NHS (7). Job demands broadly relate not just to the physical strains of the job, but also to psychological burden (13). Because professions such as physiotherapy and occupational therapy require physical effort (9), excessive workload, both physical and psychological, may consequently influence not only well-being of both younger and older staff, but also job satisfaction among this professional group.

Job satisfaction has been characterised as 'a global sense of satisfaction with one's work' (14). Jobs involving the provision of care to others such as healthcare jobs, afford particularly high intrinsic job satisfaction, something which is negatively related to leaving intentions (15, 16). Not only are those who experience high job satisfaction more likely to want to stay, but another important outcome is that job satisfaction can lead to better quality of care (17).

General organizational commitment is not a new concept in NHS, as research about this topic began over 40 years ago. Porter, Steers Mowday and Boulian (18) discovered that general organizational commitment was higher in psychiatric nurses who had no plans to leave the NHS. Later, Williams and Hazer (19) investigated the relationship between general organizational commitment and job satisfaction in non-state sector health institutions and reported that general organizational commitment was more important than job satisfaction for retention, but could not find a causal link. There are also some indications that commitment to the NHS is not just a source of staff well-being, but could play a role in counteracting the negative impact of extrinsic job demands; e.g. the long working days, high physical load, and shortage of resources on job satisfaction, as it can bolster emotional resilience and protect against these stresses and strains, an effect found to exist among other stressful non-healthcare professions (20).

While there is little, if any, research evidence to date that has tested if commitment to the NHS per se has protective properties, research about staff in non NHS healthcare organisations in India and Saudi Arabia has discovered that affective commitment or emotional attachment, could mediate or lessen the effects of perceived injustice or burnout on the turnover intentions of nurses. (21, 22). Added to this comes evidence of what might build affective commitment, and the source is a study of Portuguese nurses who work in public hospitals. Freire and Azevedo (23) found that when nurses feel empowered and trusted their leaders, it strengthened their affective commitment. Furthermore, when nurses in Taiwan perceived their employer as one who demonstrated a high level of social responsibility, it also boosted their commitment towards that healthcare employer (24). Commitment, unlike job satisfaction takes longer to grow, and so it is less likely to change with context (18, 19, 22). Importantly, commitment to the institution such as the NHS and what it represents, may be a particularly important contributor to job satisfaction (25).

Further support for our conceptual model comes from outside of healthcare, and research conducted among the Norwegian teaching profession (26). The study involved measuring teachers' values and the research established that working in a profession that is trying to make a difference to society was important to them, and so value convergence or consonance (the extent to which they shared their values and norms with their schools) predicted feelings of belonging and job satisfaction. The broader implications of these findings are that commitment to any pro-social organisation, whether it be in a healthcare or an educational setting, could instil strong commitment and contribute to intrinsic job satisfaction. It has already been reported elsewhere that commitment is higher among some older workers (10). What remains untested, is if age matters in the relationship between job satisfaction, commitment and high job demands. To summarise, there is a paucity of research about AHPs in the literature, as well as our understanding of the relationship between commitment to the NHS, the psychological and physical job demands of the job and job satisfaction, and if these models differ according to age. To this end we formulated the following hypotheses:

Research hypothesis

Hypothesis 1: NHS commitment will have a significant and positive relationship with job satisfaction for AHPs.

Hypothesis 2: Job demands will have a significant negative and direct relationship with job satisfaction for AHPs.

Hypothesis 3: NHS commitment will lessen the negative impact of job demands on job satisfaction for AHP's.

Hypothesis 4: NHS commitment may be stronger among older AHPs.

Method

This was a cross-sectional study as measurements were taken at one point in time. The data was collected between March 2016 and October 2016. Full ethical approval was obtained from the University of Leicester (Ref: gp171-912f) and the University of Bath Ethics Committees (Ref: 14/123). As the research project involved NHS staff only, no NHS ethics approval was required. As well as attracting national respondents from England and Scotland, the sub-sample (n=1115) included AHP staff from six NHS organisations (Trusts) providing care in community and acute care settings, who had been participating in a larger four-year project funded by the Medical Research Council (UK) entitled "Extending working Lives in the NHS". Data were generated from a short web-based survey, designed using Bristol Online Survey software. The short survey contained a set of structured demographic questions on job role, job band (grade), NHS tenure, patterns of working, plans to work in NHS in the future, and whether or not the respondent managed staff.

A number of cognitive interviews had previously taken place with healthcare staff, as a preliminary pilot test of the content validity of the items, the selection of which had been already informed by established instruments (see Supplementary File for full details). The respondents in the pilot had found the questions clear and easy to understand. The agreed final set of 33 attitude statements corresponded to work and environmental conditions such as; satisfaction with the job, lack of resources, time pressures, autonomy, and commitment to the NHS. The responses comprised of scores on a five-point Likert scale, from strongly disagree (1) to strongly agree (5). An informed consent procedure was an integrated part of the web based survey management system.

Measures

Control variables

Participants provided their job band or grade (ranging from one to 10), and indicated how long they had worked in the NHS, whether or not they managed staff (no (0) yes (1)),

the amount of unpaid and paid overtime they normally worked in a week, gender, length of service. Any statistically significant differences found with effect sizes less than .01 were treated as non-noteworthy. Levene's tests of equality of error variances in any assessment of power, suggests that partial eta² values of 0.01 are considered small, 0.06 medium, and 0.14 high. Initial inspection of the data and testing of means differences in the main study variables revealed only significant differences according to job banding, and this became a control variable in the main analysis.

Job satisfaction

Existing job satisfaction scales informed the choice of statements (see supplementary file). The statements aimed to tap intrinsic components of satisfaction and the characteristics of the job that were important to NHS staff. Respondents were asked: 'I enjoy the actual work I do'; 'I find it satisfying to care for and treat patients'; I find my job fulfilling'; 'I look forward to going into work'. Participants responded using a five point Likert scale, with anchors of strongly disagree (1) to strongly agree (5).

Job demands

Potential impacts of the psychological and physiological demands of the job informed statements about attitudes towards work rates, resources; time pressures, flexibility, role ambiguity and psychological stress. As existing scales were long, and the authors wanted to avoid a lengthy survey, 25 items were included from previous scales (see supplementary file). For example; 'My job often leaves me psychologically stressed; there is often too much to do in the time available; my shifts are too long; 'there are insufficient resources to do my job', etc. Participants responded using a five point Likert scale, with anchors of strongly disagree (1) to strongly agree (5).

Commitment to the NHS

Commitment to the NHS was probed through the inclusion of items reflecting the self-categorisation and belonging components of commitment to the NHS. The formulated statements were as follows: 'I think the NHS is where I belong'; 'I would never want to work outside the NHS'; 'I would recommend working for the NHS to others'; if I could afford to (financially), I would leave the NHS tomorrow (reverse coded). They were asked to indicate their agreement using a five point Likert scale, with anchors of strongly disagree (1) to strongly agree (5).

Data analysis methodology

The authors used a random selection of 50% of cases (sample one) from the main data file to test for a suitable factor solution (a full breakdown of the exploratory factor analysis (EFA) and descriptive statistics are available in the supplementary file). Having found the best solution, the remaining data provided a second data file, which was used to perform a confirmatory factor analysis (CFA).

Figure 2 here

Having confirmed that the data fitted the model adequately, the Structural Equation Modelling (SEM) command in STATA 14 was used to perform a latent variable mediation analysis. The purpose of the main analysis was two-fold: to test Hypotheses 1, 2, and 3; and also to determine how these effects may differ among age groups.

The sample was 85% female (mean age 47) and 15% male (mean age 48). The authors categorised the age variable with three groups, under 45's (0), 45 to 54 (1), and 55 and over (2). Those who did not know about their future working intentions (n=207) were not included in the main analysis. The CFA (measurement model) was combined with the structural models for 'under 45's', 'over 45' and '55 and over' age groups. In this current analysis, 95% confidence intervals of indirect effects was obtained with 1000 bootstrapped samples. If direct effects are found to be non-significant, this is an indication of total mediation. A path

analysis provided total, indirect and direct effects in the mediation model while controlling for job banding. A goodness of fit test using the χ2 ratio, was used to yield fit indices including the comparative fit index (CFI). The root mean square error of approximation (RMSEA), was used to test how well the model fitted the population.

Results

An examination of the overall fit indices indicated the model fitted the data well; the maximum least squares estimate χ2 value associated with the model was equal to 466.580 (*df*, 171), $p < .001$), and null model χ2 was 6424.188 (*df*, 210), $p< .001$. Using these two χ2 indices, the goodness of fit values were, TLI = .94; CFI = .95, RMSEA = .04 and SRMR = .05. The following section examines the results of the path analyses separately for the three age groups.

Table 1 here

Statistical mediation was established and the total, direct, and indirect effects results are in Table 1. As hypothesised, commitment to the NHS significantly and positively predicted job satisfaction, supporting H1; in under 45's (b = .459, p<.001), over 45's (b = .605, p<.001), and over 55'ss (b = .546, p<.001). (See Table 1). In support of H2, job demands significantly and negatively predicted commitment to the NHS in under 45's (b = -.516, p<.001), over 45's (b = -.439, p<.001), and over 55'ss (b = -.687, p<.001). Also, in support of H3, the total effects of job demands on job satisfaction were mediated by commitment to NHS by 38% in under 45's (calculated by dividing indirect effect by total effect (237/.626), by 86% in over 45's (.265/.308), and by 81% in the over 55's age group (.375/.462). This suggests that commitment to the NHS is less effective in acting as a buffer against high job demands among the under 45's age group, and most effective for the 45-54 age group (also we found the strongest relationship between commitment to NHS and job satisfaction in this age group). Lack of flexibility significantly and negatively predicted commitment in under

45's (b = -.220, p<.05 and lack of flexibility effects on job satisfaction were mediated by commitment to the NHS in under 45's by 58%. Lack of resources was the most significant and negative predictor of job satisfaction among the under 45's age group.

Our final hypothesis was that commitment to the NHS would be stronger among oldest AHPs in line with previous related research (27), however the over 55's were no more committed to the NHS than the younger age groups, as no noteworthy differences in commitment to the NHS mean scores were detected. The negative effects of job demands however, had the most negative influence on commitment to NHS among the over 55's age group. Furthermore, among all age groups, there was a significant positive relationship between job band and lack of resources, and also with job demands, and these effects grew as age increased. It appears that with seniority, comes the experience of an increasing lack of available resources and higher job demands. The effects of lack of flexibility on job satisfaction were mediated by commitment to the NHS among the under 45's and 45-54 age groups. Surprisingly, no significant relationship was found between lack of flexibility and level of commitment to NHS among the over 55's age group. Finally, a lack of flexibility had the most negative impact on commitment to NHS among the under 45's, and commitment to the NHS was the least effective as a mediator of job demands on job satisfaction among this younger group (38%).

Summary

Among AHPs, an exploratory and a confirmatory factor analysis yielded a 5-factor model with acceptable fit indices which the authors used to build a structural equation model. The findings revealed a positive, significant and direct relationship between AHPs' commitment to the NHS and job satisfaction. Moreover, commitment mediated and therefore significantly lessened the negative effects of job demands on job satisfaction for all AHPs, and this was most effective among the over 45's and over 55's age groups. As job demands

increased, commitment to the NHS reduced significantly in all groups, but more so among the over 55's. A lack of flexible working opportunities was not a significant predictor of commitment to the NHS, nor of job satisfaction among the over 55's.

Discussion

Working in the NHS can bring with it high intrinsic job satisfaction, but it can also embody high job demands. Commitment to the NHS reduced the negative impact of job demands on job satisfaction and this worked best among the older workers and less well among the under 45's age group. These findings suggest that commitment to the NHS among AHPs, like affective commitment in non-NHS nurses (18); can provide an important buffer against high job demands, and age matters. Commitment was more effective in buffering job satisfaction among the under 45's from a lack of resources, and lack of flexible working. It would seem intuitive therefore to suggest different retention strategies will be needed for different age groups.

One explanation why commitment to the NHS predicts and protects intrinsic job satisfaction could be due to value consonance, something found in non-healthcare research (26). Consonance exists when employees value and believe in what they do (e.g. patient care) and work for an institution that also promotes such values. The NHS stands for a set of benevolent values, and these very values may converge with the values of those who work there. In fact, some evidence exists already that some NHS professions have a strong affinity with altruistic values (11). Believing in what you are doing provides a buffer against stressful experiences, something found in research reported elsewhere (20). While job satisfaction and job demands have been thoroughly researched (9, 12), there has been no explicit account reported on the nature of the relationship between job satisfaction and commitment to the NHS and job demands. Moreover, a gap exists in the literature about AHPs work experiences in general, and a short survey tool had not previously been available that can be used to test

these relationships about NHS healthcare professional, until now. They survey tool yielded good data and supported the subsequent testing of our research hypotheses. Furthermore, among AHPs, not only are these three variables statistically significantly and positively related, but commitment to the NHS appears to have a special role in bolstering job satisfaction, something important when work demands are high.

Limitations

There are a number of limitations to the research. Firstly, this was a cross-sectional study and measures taken at one point in time. Because of this, while the analysis demonstrated statistical mediation, cause and effect relationships can only be inferred. Secondly, the authors employed short, self-reported attitude measures and not objective behaviour measures. Third, as a convenience sample, the survey was only available to members of professional bodies and Trade Unions, and while nationally distributed, not all AHPs are members may have had access to the survey. Further studies may perform stratified sampling to ensure any new samples more fully represent the composition of AHP staff in the NHS in terms of age, job banding and gender.

Implications for practice.

These findings represent new additions to the small, but growing literature about what may help to retain experienced AHPs working in the NHS. As job demand levels rose, it had the most negative impact on commitment to the NHS among the older staff. Maintaining and building commitment is important for all age groups, but efforts to reduce heavy workload experienced by the older AHPs may be most important and relevant in efforts to retain older staff. Human Resource strategies should address the lack of resources and develop better flexible working policies for the young age groups, to ensure they plan a longer career in the NHS. Reasons for leaving the NHS are complex, but by unpacking the nature of the relationship between job demands and these retaining factors, we have demonstrated that with higher commitment to the NHS, comes better protection of job satisfaction against high work demands, and age matters.

If we consider this new evidence in this paper, and the findings from Norwegian teachers and the nurses in Saudi Arabia, Taiwan, and Portugal, we can put forward a tentative but legitimate case that employer behaviour impacts on staff commitment. Commitment can be enhanced if employees hold values congruent with their organisation; perceive their employer as being trustworthy and morally responsible; and working to benefit their organisation, as well and society at large. One way NHS organisations, the professional bodies, and trade unions representing AHPs can achieve this is, is through the adoption of the recommendations of the King's Fund, a large think tank in the UK, and champion more commitment and engagement through the clear communication of organisational values such as honesty, fairness and compassion. To do nothing may result in more AHPs making the decision to leave the NHS, taking many years of accumulated skills, experience, and wisdom with them.

Acknowledgements.

We wish to thank the Medical Research Council for funding this study (Project MR/L006634/1). We gratefully acknowledge the contribution of all the respondents and employees of the participating Trusts who gave up their time to inform this study. We would particularly acknowledge the support of the UK professional bodies of Allied Healthcare Professionals who assisted us with the survey.

Declaration of conflicting interests

The author(s) declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

Data Accessibility

The data set is held in a secure repository at the University of Leicester and can be accessed by contacting Professor Peter Nolan (pn54@leicester.ac.uk).

References

1. Cridland J. Smoothing the Transition: Independent Review of the State Pension Age. Available from https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/611460/independent-review-of-the-state-pension-age-smoothing-the-transition.pdf. [2017, accessed on 29 May 2019].

2. Forster K. Morale crisis among NHS doctors puts patients at risk. Available from: http://www.independent.co.uk/life-style/health-and-families/health-news/nhs-doctors-morale-gmc-report-specialising-state-of-medicine-general-medical-council-working-a7382606.html. [2016, accessed 14 February 2018].

3. British Medical Association. Ageing and the workplace. Available from: https://www.bma.org.uk/-/media/files/pdfs/.../ageing-and-the-workplace.pdf [2016, accessed on 29 May 2019].

4. Loane-Clarke J, Arnold J, Coombs C, et al. Retention, turnover and return: A longitudinal study of allied health professionals in Britain. *Hum. Resour. Manag. J.* 2010; 20: 391–406.

5. NHS England. Five year forward view. Available from: https://www.england.nhs.uk/wp-content/uploads/2014/10/5yfv-web.pdf [2014, accessed on 9 August 2019].

6. Roy D, Weyman A, George A, et al. A qualitative study into the prospect of working longer for physiotherapists in the United Kingdom's National Health Service. *Ageing Soc.* 2017; 37: 1-22.

7. Barret L and Robinson E. Understanding the current evidence base on workforce retention in Health and Social Care. A rapid evidence review for The Health Foundation. Available from: http://www.research-matters.co.uk/wp-content/uploads/2018/10/Rapid-Evidence-Review-on-NHS-retention-Research-Matters-Sept-2018.pdf [2018, accessed on 9 August 2019].

8. Lunt J, Fox D, Bowen J, et al. Applying the biopsychosocial approach to managing risks of contemporary occupational health conditions: Scoping review. (Research Report No. HSL/2007/24). Available from: http://www.hse.gov.uk/research/hsl_pdf/2007/hsl0724.pdf [2007, accessed 4 February 2018].

9. King P, Huddleston W and Darragh AR. Work-related musculoskeletal disorders and injuries: Differences among older and younger occupational and physical therapists. *J. Occup. Rehabil.* 2009; 19: 274–283.

10. Radford K and Chapman G. Are all workers influenced to stay by similar factors, or should different retention strategies be implemented? Comparing younger and older aged-care workers in Australia. *Aust. Bull. Labour*. 2015; 41: 58–81.

11. Merali F. Developing an explicit strategy towards social responsibility in the NHS. *J Health Organ Manag*. 2006; 20: 309-324.

12. Decker FH, Harris-Kojetin LD and Bercovitz A. Intrinsic job satisfaction, overall satisfaction, and intention to leave the job among nursing assistants in nursing homes. *Gerontol.* 2009; 49: 596-610.

13. Karasek RA and Theorell T. Healthy work. New York, NY: Basic books; 1990.

14. Nagy MS. Using a single item approach to measure facet job satisfaction. *J Occup Organ Psych.* 2002; 75*:* 77-86.

15. Coomber B and Barriball KL. Impact of job satisfaction components on intent to leave and turnover for hospital-based nurses: A review of the research literature. *Int J Nurs Stud.* 2017; 44: 297-314.

16. Fasbender U, Van Der Heijden BIJM, and Grimshaw S. Job satisfaction, job stress and nurses' turnover intentions: The moderating roles of on-the-job and off-the-job embeddedness. *J Adv Nurs*. 2019; 75: 327–337.

17. Powell M, Dawson J, Topakas A, et al. Staff satisfaction and organisational performance: Evidence from a longitudinal secondary analysis of the NHS staff survey and outcome data. *Health Serv Deliv Re*s. 2014; 2(50). NIHR Journals Library.

18. Porter LW, Steers RM, Mowday RT, et al. Organizational commitment, job satisfaction, and turnover among psychiatric technicians. *J Appl Psycho.* 1974; 59: 603-609.

19. Williams LJ and Hazer JT. Antecedents and consequences of satisfaction and commitment in turnover models: A reanalysis using latent variable structural equation methods. *J Appl Psycho.* 1986; 71: 219-231.

20. Kobasa SC. Commitment and coping in stress resistance among lawyers. *J Pers Soc Psychol.* 1982; 42: 707–717.

21. Moussa, MN. Effects of perceived procedural justice and exchange ideology on employees' affective commitment: Evidence from Saudi Arabia. *Int. J. Bus. Manag.* 2013; 8:81-89.

22. Sharma J and Dhar RL. Factors influencing job performance of nursing staff and mediating role of affective commitment. *Pers Rev.* 2016; 45: 161-182.

23. Freire C, and Azevedo RMM. Empowering and trustful leadership: impact on nurses' commitment. *Pers Re*v. 2015; 44: 702-719.

24. Hsieh SC, Chiu HC and Hsieh YH et al. The perceptions and expectations toward the social responsibility of hospitals and organizational commitment of nursing staff. *J Nurs Res*. 2016; 24: 249–261.

25. McNeese-Smith DK. A nursing shortage: Building organizational commitment among nurses. *J. Health Manag.* 2001; 46: 173-186.

26. Skaalvik EM and Skaalvik S. Teachers' feeling of belonging, exhaustion, and job satisfaction: The role of school goal structure and value consonance. *Anxiety, Stress Coping.* 2011; 24: 369–385.

27.West MA and Dawson JF. Employee engagement and NHS performance. Available from;https://www.google.com/search?rlz=1C1GCEA_enGB856GB856&lei=D4lRXe3BLZqG1fAPxoOVuAY&q=employee%20engagement%20and%20nhs%20performance&ved=2ahUKEwiis76N1v3jAhUFgRoKHfc6CEIQsKwBKAF6BAgAEAI&biw=1920&bih=969 [2016, Accessed on 12 August 2019].

Latent Path Analysis Model

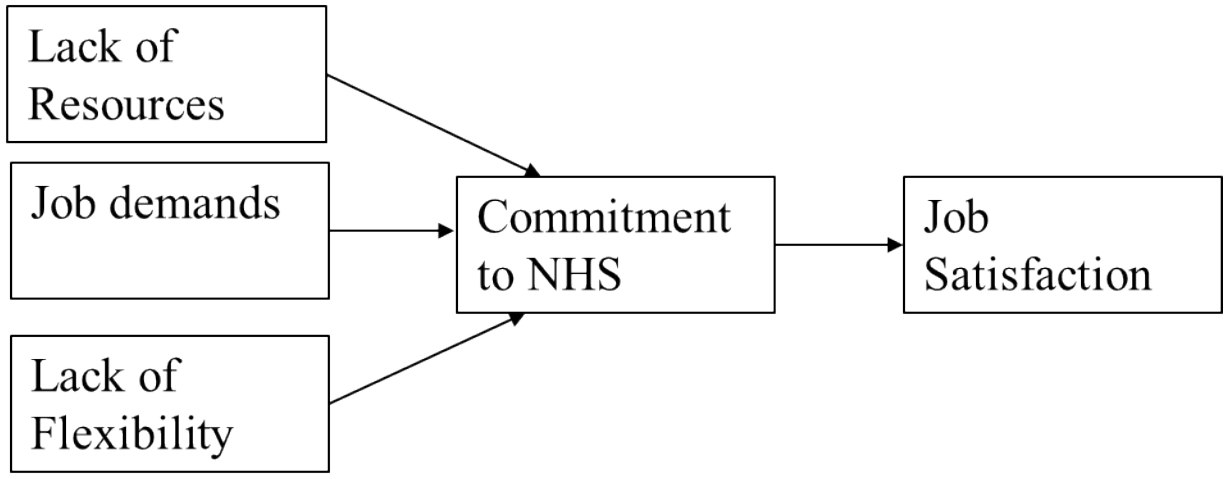
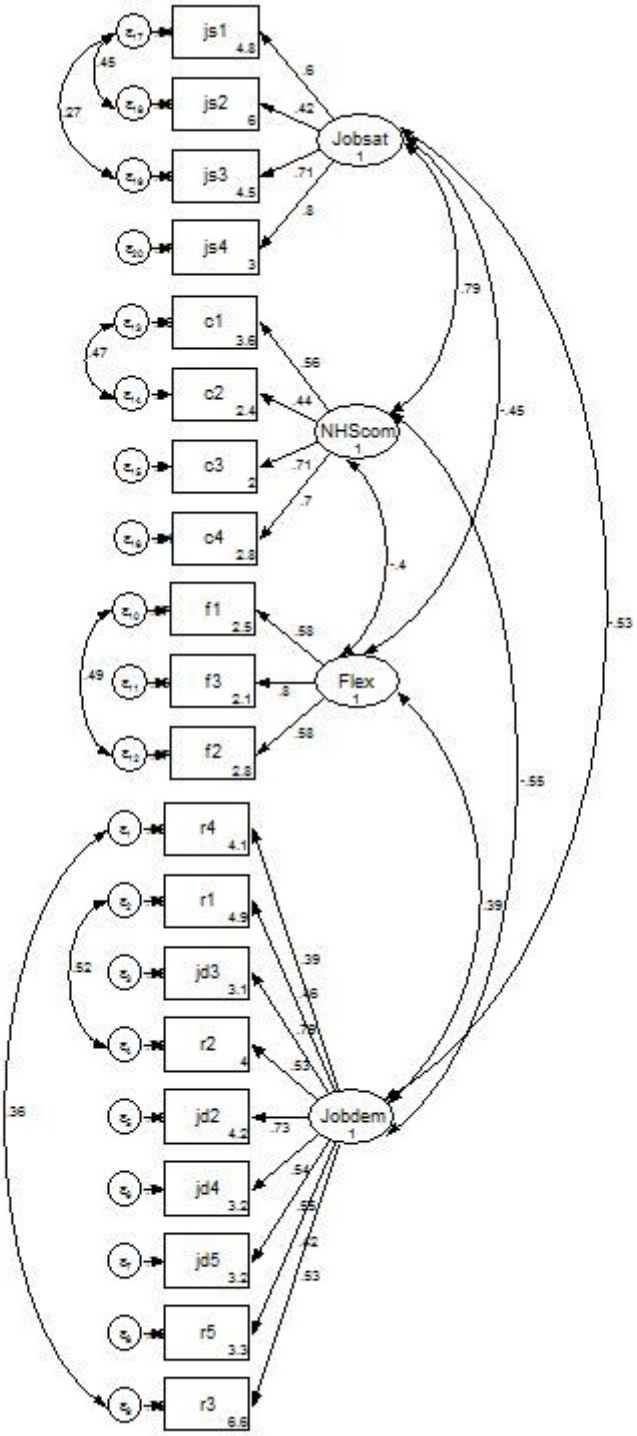


Table 1

	Age groups								
Variables	Under 45's			45-54			55 and over		
	Total effects	**Direct effects**	**Indirect effects**	**Total effects**	**Direct effects**	**Indirect effects**	**Total effects**	**Direct effects**	**Indirect effects**
Job demands – Commitment to NHS ***[H1, H2]***	-.516***	-.516***	No path	-.439***	-.439***	No path	-.687***	-.687***	No path
Job demands – Job satisfaction ***[H3]***	-.626***	-.390**	-.237***	-.308***	-.042	-.265***	-.462***	-.087	-.375***
Lack of Resources – Job satisfaction	.371**	.298**	.073	-.050	.072	-.121	.304*	.227	.077
Lack of Resources - Commitment to NHS.	.160	.160	No path	-.201	-.201	No path	.141	.141	No path
Commitment to NHS –Job satisfaction	.459***	.459	No path	.605***	.605	No path	.546***	.546	No path
Lack of Flexibility – Job satisfaction	-.188*	-.087	-.101*	-.268**	-.173*	-.095	-.106	-.007	-.099
Lack of Flexibility – Commitment to NHS	-.220*	-.220*	No path	-.158	-.158	No path	-.182	-.182	No path
Job Band – Jobdemands	.105**	.105**	No path	.115**	.115**	No path	.148**	.148**	No path
Job Band – Job Satisfaction	.011	-.058	.069*	-.009	-.065	.056	.009	-.058	.067
Job Band - Resources	.269***	.269***	nopath	.284***	.284***	No path	.311***	.311***	No
Job Band – commitment to NHS	.029	-.001	.030	.008	.083	0.075*	.014	.031	-.017
Job Band – Lack of Flexibility	-.186***	-.186***	No path	-.205***	-.205***	No path	-.224***	-.224***	No path
Job Band – Job demands	.105**			.115**			.148**		

*= <.05 ** = <.01 *** = <.001


js1
4.8
js2
6
js3
4.5
js4
3
Jobsat
1
c1
3.6
c2
2.4
c3
2
c4
2.8
NHScom
1
f1
2.5
f3
2.1
f2
2.8
Flex
1
r4
4.1
r1
4.9
jd3
3.1
r2
4
jd2
4.2
jd4
3.2
jd5
3.2
r5
3.3
r3
6.6
Jobdem
1
.6
.42
.71
.8
.79
.56
.44
.71
.7
.58
.8
.58
.39
.46
.79
.53
.73
.54
.55
.42
.53
.45
.4
.53
.55
.39
.45
.27
.47
.49
.52
.36

Institutional commitment among Allied Health Care Professionals in the British National Health Service.

Supplementary File

1. Formulation of the list of 33 original statements contained in the NHS Extending Working Lives Survey 2016.

The authors reviewed the extant literature on psychological variables, and any available validated instruments suitable for their measurement and testing. The literature informed the selection of a total of 33 statements. The literature reviewed is described in the following three sections:

Job satisfaction

Existing job satisfaction scales informed the statements; e.g., Shepard's (1974) Global Job Satisfaction Survey; and McCloskey Mueller Satisfaction Scale (MMSS). The statements tap into general intrinsic feelings of satisfaction and the facet of the job important to NHS staff; that of patient care. Four statements were as follows; 'I enjoy the actual work I do'; 'I find it satisfying to care for and treat patients'; I find my job fulfilling'; 'I look forward to going into work'. Participants responded using a five point Likert scale, with anchors of strongly disagree (1) to strongly agree (5).

Job demands (later became 3 scales; job demands, flexibility and resources)

Potential impacts of the psychological and physical demands of the job informed statements about attitudes towards work rates, resources; time pressures, flexibility, role ambiguity and psychological stress (Karasek & Theorell, 1990). The authors formulated a total of 26 items from existing literature and scales (e.g., Cousins et al 2004; Job Content Questionnaire (Karasek, 1985). For example; 'My job often leaves me psychologically stressed; there is often too much to do in the time available; my shifts are too long; 'there are insufficient resources to do my job', etc. Participants responded using a five point Likert scale, with anchors of strongly disagree (1) to strongly agree (5).

Commitment to the NHS

A short set of items measured the construct of NHS commitment and reflected the self-categorisation and belonging components of organisational commitment (e.g., Edwards and Peccei, 2007; Meyer, & Allen, 1997; Meyer & Herscovitch, 2001). The formulated statements were as follows: 'I think the NHS is where I belong'; 'I would never want to work outside the NHS'; I would recommend working for the NHS to others'; if I could afford to (financially), I would leave the NHS tomorrow (reverse coded). They were asked to indicate their agreement using a five point Likert scale, with anchors of strongly disagree (1) to strongly agree (5).

To finalise the choice of statements for inclusion in the final NHS Extending Working Lives' Survey, a number of cognitive interviews took place with healthcare staff. The authors sat with the member of staff and they worked through the questions in the draft survey together. The authors were able to probe staff members' understandings of the meaning and rationale behind each question. This exercise formed the preliminary pilot test of content validity of the items. The respondents found all the questions clear and easy to understand. The original 33 statements are listed in the table shown next table, along with its respective mean scores, standard deviations and measures of skewness and kurtosis calculated using the data set (n=1115).

List of 33 original statements contained in the NHS Extending Working Lives Survey 2016.

	Mean		SD	Skewness		Kurtosis	
Statement in Questionnaire	Stat	SE	Stat	Stat	SE	Stat	SE
I feel appreciated by my line manager/supervisor	2.38	.039	1.189	.822	.081	-.253	.162
I get fair pay for the hours I work	2.73	.039	1.182	.402	.081	-.893	.162
I feel appreciated by the Trust for which I work	2.56	.037	1.105	.191	.081	-.868	.162
I am able to change my hours / shifts if I need to	2.87	.038	1.150	.346	.081	-.869	.162
I have control over how I organise my working day	2.15	.035	1.041	1.014	.081	.535	.162
I find it satisfying to care for and treat patients	4.42	.025	.740	-1.616	.081	3.915	.162
I enjoy the actual work I do	4.12	.029	.867	-1.238	.081	1.965	.162
I feel I can cope now and in the future with the demands of the job	3.18	.037	1.124	-.084	.081	-.910	.162
There is too much red-tape / bureaucracy /paperwork	4.28	.027	.806	-1.131	.081	1.330	.162
There is often too much to do in the time available	4.53	.023	.686	-1.554	.081	2.906	.162
My hours/shifts are too inflexible r	3.29	.032	.962	-.501	.081	-.175	.163
My shifts are too long	2.39	.027	.819	.611	.081	.540	.163
My Trust does not appreciate my efforts	2.54	.036	1.078	.149	.081	-.835	.162
My job often leaves me physically exhausted	3.45	.036	1.083	-.357	.081	-.774	.162
My job often leaves me psychologically stressed	3.90	.031	.933	-.660	.081	-.064	.162
There are insufficient resources to do my job	3.95	.032	.975	-.749	.081	-.074	.163
There are insufficient staff to do the work	4.25	.029	.876	-1.162	.081	.924	.162
My job has a negative impact on my home/social life	3.41	.036	1.087	-.184	.081	-.899	.162
I am expected to work unpaid overtime	3.04	.020	1.271	.051	.038	-1.118	.077
I have poor working relationships with colleagues	1.89	.015	.944	1.185	.038	1.373	.077
I find my job extremely stressful	3.37	.033	1.003	-.185	.081	-.691	.162
I find myself thinking about my job at home	4.06	.025	.760	-.970	.081	1.629	.162
I am concerned that my job will have a negative impact on my health	3.50	.035	1.047	-.487	.081	-.529	.162
I find my job fulfilling	3.83	.028	.858	-.931	.081	.986	.162
Thinking about my job keeps me awake at night	3.31	.034	1.031	-.220	.081	-.799	.162
I look forward to going into work	2.93	.032	.967	-.164	.081	-.648	.162
I am exhausted at the end of my shift	3.64	.032	.957	-.451	.081	-.298	.162
I have enough time to get everything done at work	4.08	.033	.985	-1.085	.081	.711	.162
I have difficulty in meeting all the demands of my job	3.69	.037	1.118	-.660	.081	-.340	.162
I would never want to work outside of the NHS	2.55	.036	1.086	.396	.081	-.551	.162
I think that working for the NHS is where I belong	3.49	.032	.970	-.547	.081	.114	.162
If I could afford to (financially), I would leave the NHS tomorrow	2.58	.042	1.272	.217	.081	-1.158	.162
I would recommend working for the NHS to others	2.91	.034	1.031	-.143	.081	-.637	.162

2. Testing of the data to determine a suitable Factor Solution

The next stage involved formation of a set of subscales that could be used in the exploratory factor analysis. A detailed description of this next stage of analysis is available in the following section:

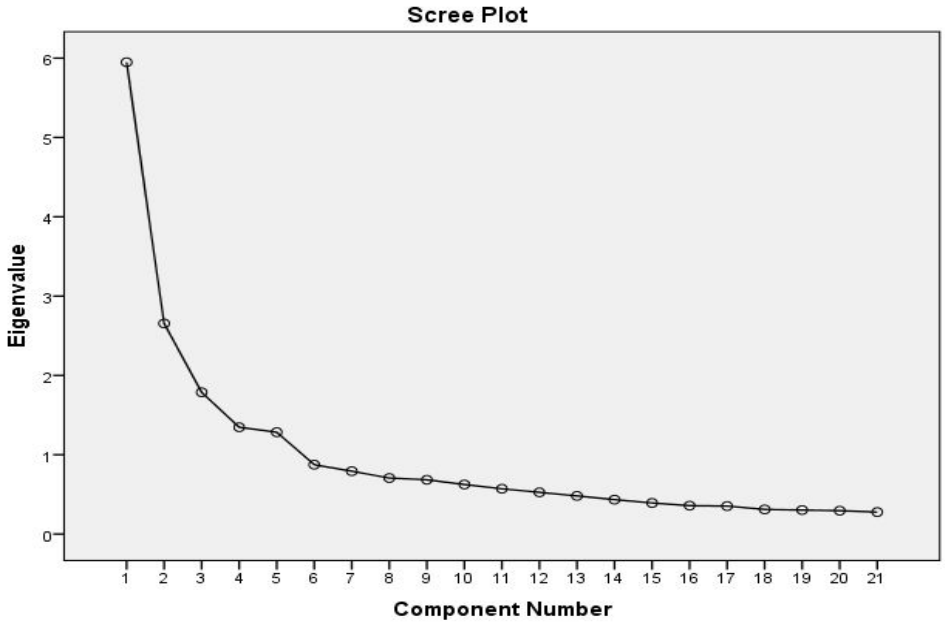
EFA and CFA Methods

The authors used a random selection of 50% of cases (Sample one) from the main data file to test for a suitable factor solution. Sample one (n= 564) was deemed large enough to carry out Exploratory Factor Analysis (EFA). Little's Missing Completely at Random (MCAR) test was performed on the full battery of test statements, and a non-significant value (Chi Square = 4182.883, $df = 447$, $p = .826$) confirmed that any data missing was missing completely at random. Sample one items were factor analysed (Principal Components and Varimax Rotation) and any items loading less than .4 were removed. Keiser-Meyer Olkin (KMO) measure of sampling adequacy for final 20 items was .870, and Bartlett's Test of Sphericity was satisfactory (*df*, 170), $p < .001$. Factor analysis assumes a normal distribution of each variable and that they have the capacity to discriminate (25). All items returned moderate to high standard deviations (range 0.630 to 1.261).

An examination of the individual items for skewness and kurtosis found them to be within acceptable limits (A full breakdown of descriptive statistics for EFA is available upon request). Good practice guidelines suggest a respondent to variables ratio of between 2:1 and 10:1. Sample one conformed to 10:1 ratio. The KMO measure of sampling adequacy also exceeded recommended value of .6. The analysis yielded five latent factors explaining 64% of variance; job demands; 4 items (Cronbach Alpha (CA) = .83), NHS commitment; 4 items (CA = .73), job satisfaction; 4 items (CA = .79); Flexibility and control; 3 items (CA = .77) and Resources; 5 items (CA = .78).

The remaining cases (Sample two) were used to form a second dataset (n = 551) and the authors used STATA 14 based on maximum likelihood estimation to perform a Confirmatory Factor Analysis (CFA) to examine the degree to which the questionnaire items measured the distinct latent variables revealed by the EFA. The CFA model is available as Figure 2. The Maximum Least Squares

Estimate $\chi 2$ value associated with the CFA solution was equal to 466.143, (*df,* 159), $p < .001$), and null model $\chi 2$ was 3903.323 (*df,* 190), $p < .001$. Using these two Chi Square indices, the goodness of fit values were TLI = .91, CFI = .92, RMSEA = .06 and SRMR =.06. The scree plot is an indication of how many factors should be retained in the factor solution. The scree plot indicated that a five factor solution best fitted for the data.



Exploratory Factor Analysis – Five Factor Solution

The statements that were retained in each sub scale are shown below in the Rotated Component Matrix. All items retained were entered into the Confirmatory Factor Analysis which confirmed the model. These subscales were used in the subsequent latent variable path analysis.

Rotated Component Matrix[a]

	Component				
	1	2	3	4	5
R1 There are insufficient staff to do the work	.768				
R4 I have enough time to get everything done at work	-.744				
R2 There are insufficient resources to do my job	.725				
R3 There is often too much to do in the time available	.677				
R5 I have difficulty in meeting all the demands of my job	.629				
JS1 I enjoy the actual work I do		.851			
JS2 I find it satisfying to care for and treat patients		.777			
JS3 I find my job fulfilling		.728			
JS4 I look forward to going into work		.514			
JD4 My job often leaves me physically exhausted			.776		
JD1 I am concerned that my job will have a negative impact on my health			.743		
JD2 My job often leaves me psychologically stressed			.726		
JD3 My job has a negative impact on my home / social life			.671		
C2 I would never want to work outside of the NHS				.820	
C1 I think that working for the NHS is where I belong				.802	
C3 If I could afford to (financially), I would leave the NHS tomorrow				-.579	
C4 I would recommend working for the NHS to others				.538	
F1 I am able to change my hours / shifts if I need to					.853
F2 (Q15_3)My hours/shifts are too inflexible					-.842
F3 I have control over how I organise my working day					.687

Extraction Method: Principal Component Analysis. Rotation Method: Varimax with Kaiser Normalization.

a. Rotation converged in 5 iterations.

References

Edwards MR and Peccei R. Organizational identification: Development and testing of a conceptually grounded measure. *European Journal of Work and Organizational Psychology*. 2007; 16: 25-57.

McCloskey Mueller Satisfaction Scale (MMSS): Mueller, C. W., & McCloskey, J. C. (1990). Nurses' job satisfaction: A proposed measure. Nursing Research, 39, 113-117.

Cousins, R.; MacKay, C. J.; Clarke, S. D., ; Kelly, C.; Kelly, P. J., McCaig, R. H. (2004). Management Standards' work-related stress in the UK: Practical development. Work & Stress, 18, 113-137.

Karasek, R.A. (1985). Job Content Questionnaire and User's Guide; Department of Work Environment, University of Massachusetts Lowell: Lowell, MA, USA.

Karasek RA and Theorell T. Healthy work. New York, NY: Basic books; 1990.

Meyer, J. P., & Allen, N. J. (1997). Commitment in the workplace: Theory, research, and application. Thousand Oaks, CA: Sage.

Meyer, J. P., & Herscovitch, L. (2001). Commitment in the workplace: Toward a general model. *Human Resource Management Review, 11*, 299–326.

Shepard's (1974) Global Job Satisfaction Survey: Quinn, R. P., & Shepard, L. J. (1974). The 1972-73 Quality of Employment Survey. Ann Arbor, MI: Institute for Social Research. University of Michigan.

Institutional commitment among Allied Health Care Professionals in the British National Health Service.

Supplementary File

~~Supplementary File~~

1. Formulation of the list of 33 original statements contained in the NHS Extending Working Lives Survey 2016.

The authors reviewed the extant literature on psychological variables, and any available validated instruments suitable for their measurement and testing. The literature informed the selection of a total of 33 statements. The literature reviewed is described in the following three sections:

Job satisfaction

Existing job satisfaction scales informed the statements; e.g., Shepard's (1974) Global Job Satisfaction Survey; and McCloskey Mueller Satisfaction Scale (MMSS). The statements tap into general intrinsic feelings of satisfaction and the facet of the job important to NHS staff; that of patient care. Four statements were as follows; 'I enjoy the actual work I do'; 'I find it satisfying to care for and treat patients'; I find my job fulfilling'; 'I look forward to going into work'. Participants responded using a five point Likert scale, with anchors of strongly disagree (1) to strongly agree (5).

Job demands (later became 3 scales; job demands, flexibility and resources)

Potential impacts of the psychological and physical demands of the job informed statements about attitudes towards work rates, resources; time pressures, flexibility, role ambiguity and psychological stress (Karasek & Theorell, 1990). The authors formulated a total of 26 items from existing literature and scales (e.g., Cousins et al 2004; Job Content Questionnaire (Karasek, 1985). For example; 'My job often leaves me psychologically stressed; there is often too much to do in the time available; my shifts are too long; 'there are insufficient resources to do my job', etc. Participants responded using a five point Likert scale, with anchors of strongly disagree (1) to strongly agree (5).

Commitment to the NHS

A short set of items measured the construct of NHS commitment and reflected the self-categorisation and belonging components of organisational commitment (e.g., Edwards and Peccei, 2007; Meyer, & Allen, 1997; Meyer & Herscovitch, 2001). The formulated statements were as follows: 'I think the NHS is where I belong'; 'I would never want to work outside the NHS'; I would recommend working for the NHS to others'; if I could afford to (financially), I would leave the NHS tomorrow (reverse coded). They were asked to indicate their agreement using a five point Likert scale, with anchors of strongly disagree (1) to strongly agree (5).

To finalise the choice of statements for inclusion in the final NHS Extending Working Lives' Survey, a number of cognitive interviews took place with healthcare staff. The authors sat with the member of staff and they worked through the questions in the draft survey together. The authors were able to probe staff members' understandings of the meaning and rationale behind each question. This exercise formed the preliminary pilot test of content validity of the items. The respondents found all the questions clear and easy to understand. The original 33 statements are listed in the table shown next table, along with its respective mean scores, standard deviations and measures of skewness and kurtosis calculated using the data set (n=1115).

List of 33 original statements contained in the NHS Extending Working Lives Survey 2016.

Statement in Questionnaire	Mean		SD	Skewness		Kurtosis	
	Stat	SE	Stat	Stat	SE	Stat	SE
I feel appreciated by my line manager/supervisor	2.38	.039	1.189	.822	.081	-.253	.162
I get fair pay for the hours I work	2.73	.039	1.182	.402	.081	-.893	.162
I feel appreciated by the Trust for which I work	2.56	.037	1.105	.191	.081	-.868	.162
I am able to change my hours / shifts if I need to	2.87	.038	1.150	.346	.081	-.869	.162
I have control over how I organise my working day	2.15	.035	1.041	1.014	.081	.535	.162
I find it satisfying to care for and treat patients	4.42	.025	.740	-1.616	.081	3.915	.162
I enjoy the actual work I do	4.12	.029	.867	-1.238	.081	1.965	.162
I feel I can cope now and in the future with the demands of the job	3.18	.037	1.124	-.084	.081	-.910	.162
There is too much red-tape / bureaucracy /paperwork	4.28	.027	.806	-1.131	.081	1.330	.162
There is often too much to do in the time available	4.53	.023	.686	-1.554	.081	2.906	.162
My hours/shifts are too inflexible r	3.29	.032	.962	-.501	.081	-.175	.163
My shifts are too long	2.39	.027	.819	.611	.081	.540	.163
My Trust does not appreciate my efforts	2.54	.036	1.078	.149	.081	-.835	.162
My job often leaves me physically exhausted	3.45	.036	1.083	-.357	.081	-.774	.162
My job often leaves me psychologically stressed	3.90	.031	.933	-.660	.081	-.064	.162
There are insufficient resources to do my job	3.95	.032	.975	-.749	.081	-.074	.163
There are insufficient staff to do the work	4.25	.029	.876	-1.162	.081	.924	.162
My job has a negative impact on my home/social life	3.41	.036	1.087	-.184	.081	-.899	.162
I am expected to work unpaid overtime	3.04	.020	1.271	.051	.038	-1.118	.077
I have poor working relationships with colleagues	1.89	.015	.944	1.185	.038	1.373	.077
I find my job extremely stressful	3.37	.033	1.003	-.185	.081	-.691	.162
I find myself thinking about my job at home	4.06	.025	.760	-.970	.081	1.629	.162
I am concerned that my job will have a negative impact on my health	3.50	.035	1.047	-.487	.081	-.529	.162
I find my job fulfilling	3.83	.028	.858	-.931	.081	.986	.162
Thinking about my job keeps me awake at night	3.31	.034	1.031	-.220	.081	-.799	.162
I look forward to going into work	2.93	.032	.967	-.164	.081	-.648	.162
I am exhausted at the end of my shift	3.64	.032	.957	-.451	.081	-.298	.162
I have enough time to get everything done at work	4.08	.033	.985	-1.085	.081	.711	.162
I have difficulty in meeting all the demands of my job	3.69	.037	1.118	-.660	.081	-.340	.162
I would never want to work outside of the NHS	2.55	.036	1.086	.396	.081	-.551	.162
I think that working for the NHS is where I belong	3.49	.032	.970	-.547	.081	.114	.162
If I could afford to (financially), I would leave the NHS tomorrow	2.58	.042	1.272	.217	.081	-1.158	.162
I would recommend working for the NHS to others	2.91	.034	1.031	-.143	.081	-.637	.162

2. Testing of the data to determine a suitable Factor Solution

The next stage involved formation of a set of subscales that could be used in the exploratory factor analysis. A detailed description of this next stage of analysis is available in the following section:

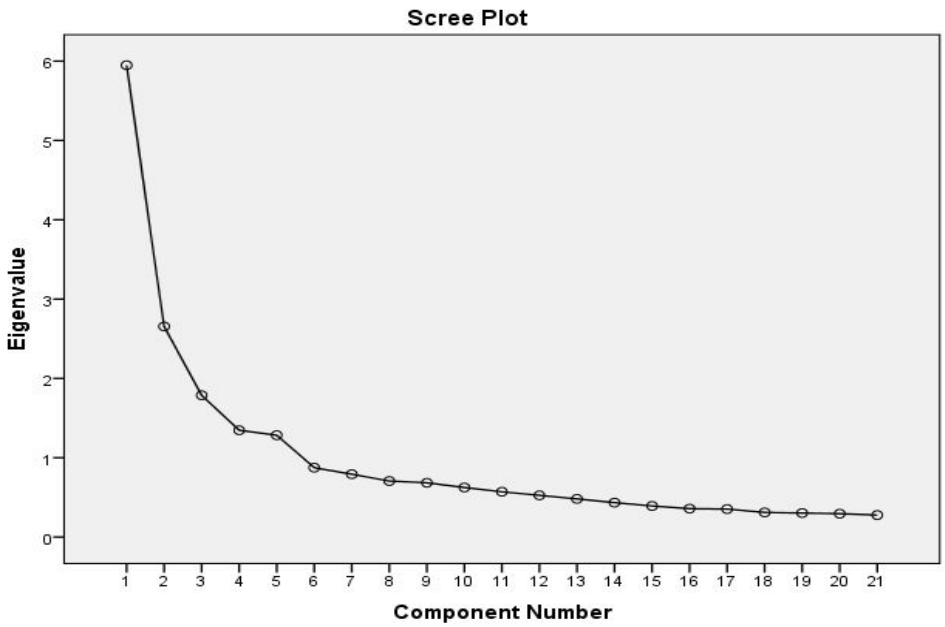
EFA and CFA Methods

The authors used a random selection of 50% of cases (Sample one) from the main data file to test for a suitable factor solution. Sample one (n= 564) was deemed large enough to carry out Exploratory Factor Analysis (EFA). Little's Missing Completely at Random (MCAR) test was performed on the full battery of test statements, and a non-significant value (Chi Square = 4182.883, $df = 447$, $p = .826$) confirmed that any data missing was missing completely at random. Sample one items were factor analysed (Principal Components and Varimax Rotation) and any items loading less than .4 were removed. Keiser-Meyer Olkin (KMO) measure of sampling adequacy for final 20 items was .870, and Bartlett's Test of Sphericity was satisfactory (*df*, 170), $p < .001$. Factor analysis assumes a normal distribution of each variable and that they have the capacity to discriminate (25). All items returned moderate to high standard deviations (range 0.630 to 1.261).

An examination of the individual items for skewness and kurtosis found them to be within acceptable limits (A full breakdown of descriptive statistics for EFA is available upon request). Good practice guidelines suggest a respondent to variables ratio of between 2:1 and 10:1. Sample one conformed to 10:1 ratio. The KMO measure of sampling adequacy also exceeded recommended value of .6. The analysis yielded five latent factors explaining 64% of variance; job demands; 4 items (Cronbach Alpha (CA) = .83), NHS commitment; 4 items (CA = .73), job satisfaction; 4 items (CA = .79); Flexibility and control; 3 items (CA = .77) and Resources; 5 items (CA = .78).

The remaining cases (Sample two) were used to form a second dataset (n = 551) and the authors used STATA 14 based on maximum likelihood estimation to perform a Confirmatory Factor Analysis (CFA) to examine the degree to which the questionnaire items measured the distinct latent variables revealed by the EFA. The CFA model is available as Figure 2. The Maximum Least Squares

Estimate $\chi 2$ value associated with the CFA solution was equal to 466.143, (*df,* 159), $p < .001$), and null model $\chi 2$ was 3903.323 (*df,* 190), $p < .001$. Using these two Chi Square indices, the goodness of fit values were TLI = .91, CFI = .92, RMSEA = .06 and SRMR =.06. The scree plot is an indication of how many factors should be retained in the factor solution. The scree plot indicated that a five factor solution best fitted for the data.



Exploratory Factor Analysis – Five Factor Solution

The statements that were retained in each sub scale are shown below in the Rotated Component Matrix. All items retained were entered into the Confirmatory Factor Analysis which confirmed the model. These subscales were used in the subsequent latent variable path analysis.

Rotated Component Matrix[a]

	Component				
	1	2	3	4	5
R1 There are insufficient staff to do the work	.768				
R4 I have enough time to get everything done at work	-.744				
R2 There are insufficient resources to do my job	.725				
R3 There is often too much to do in the time available	.677				
R5 I have difficulty in meeting all the demands of my job	.629				
JS1 I enjoy the actual work I do		.851			
JS2 I find it satisfying to care for and treat patients		.777			
JS3 I find my job fulfilling		.728			
JS4 I look forward to going into work		.514			
JD4 My job often leaves me physically exhausted			.776		
JD1 I am concerned that my job will have a negative impact on my health			.743		
JD2 My job often leaves me psychologically stressed			.726		
JD3 My job has a negative impact on my home / social life			.671		
C2 I would never want to work outside of the NHS				.820	
C1 I think that working for the NHS is where I belong				.802	
C3 If I could afford to (financially), I would leave the NHS tomorrow				-.579	
C4 I would recommend working for the NHS to others				.538	
F1 I am able to change my hours / shifts if I need to					.853
F2 (Q15_3)My hours/shifts are too inflexible					-.842
F3 I have control over how I organise my working day					.687

Extraction Method: Principal Component Analysis. Rotation Method: Varimax with Kaiser Normalization.

a. Rotation converged in 5 iterations.

References

Edwards MR and Peccei R. Organizational identification: Development and testing of a conceptually grounded measure. *European Journal of Work and Organizational Psychology*. 2007; 16: 25-57.

McCloskey Mueller Satisfaction Scale (MMSS): Mueller, C. W., & McCloskey, J. C. (1990). Nurses' job satisfaction: A proposed measure. Nursing Research, 39, 113-117.

Cousins, R.; MacKay, C. J.; Clarke, S. D., ; Kelly, C.; Kelly, P. J., McCaig, R. H. (2004). Management Standards' work-related stress in the UK: Practical development. Work & Stress, 18, 113-137.

Karasek, R.A. (1985). Job Content Questionnaire and User's Guide; Department of Work Environment, University of Massachusetts Lowell: Lowell, MA, USA.

Karasek RA and Theorell T. Healthy work. New York, NY: Basic books; 1990.

Meyer, J. P., & Allen, N. J. (1997). Commitment in the workplace: Theory, research, and application. Thousand Oaks, CA: Sage.

Meyer, J. P., & Herscovitch, L. (2001). Commitment in the workplace: Toward a general model. *Human Resource Management Review, 11*, 299–326.

Shepard's (1974) Global Job Satisfaction Survey: Quinn, R. P., & Shepard, L. J. (1974). The 1972-73 Quality of Employment Survey. Ann Arbor, MI: Institute for Social Research. University of Michigan.