

Job satisfaction among public sector health employees: Gender, sexual identity, and ethnicity

KAREN MUMFORD *School for Business and Society, University of York, UK;*
IZA, Institute for the Study of Labour, Germany

EDITH AGUIRRE *Institute for Social and Economic Research, University of Essex, UK*

ANNA EINARSDÓTTIR *School for Business and Society, University of York, UK*

BRIDGET LOCKYER *Bradford Institute for Health Research, UK*

MELISA SAYLI *School of Economics, University of Surrey, UK*

BENJAMIN A. SMITH *Townsville University Hospital and Health Service, Australia*

Abstract

We explore the determinants, and differences, in reported job satisfaction for women, ethnic minority and LGB+ employees among public sector health employees in the English National Health Service (NHS). A broad range of possible determinants are considered including demographic variables, job characteristics, and supportive workplace measures. Women are found to be more likely to be satisfied with their jobs, as are LGB+ employees from ethnic minorities. There is evidence that higher wage is positively associated with job satisfaction, but relative wages are not consistently related to job satisfaction. In contrast, supportive workplace practices are strongly associated with higher rates of job satisfaction. Of particular importance are effective workplace anti-bullying policies and the presence of relevant minority staff networks, especially for those identifying as LGB+. These results suggest that organisations can raise job satisfaction by further facilitating these supportive workplace practices.

Keywords: job satisfaction, LGB+, gender; ethnicity, networks, NHS, public health

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Corresponding author: Karen Mumford, karen.mumford@york.ac.uk, School of Business and Society, Church Lane Building, Church Lane, University of York, Heslington York YO10 5DG, UK.

Introduction



Job satisfaction amongst workers is strongly related to productive work behaviour, lower absenteeism and fewer quits (Yean *et al.*, 2023). There is a large and ongoing literature describing, and seeking to explain, job satisfaction (Freeman, 1978; Clark, 1997; Dolan *et al.*, 2008; Falk *et al.*, 2008; Clark *et al.*, 2009; Mumford and Smith, 2015; Green *et al.*, 2018). The main contribution we make to this research area is to provide a more detailed (and comparative) exploration of the determinants of job satisfaction for women, LGB+, and ethnic minorities.

Despite women facing extensive historical discrimination in the labour market and encountering sizeable gender pay gaps (Blau and Kahn, 2017; Goldin *et al.*, 2022), early studies typically found that women were more likely to be satisfied with their jobs than men (Clark, 1997). More recent studies suggest the gendered difference in job satisfaction is diminishing as women's expectations of work are changing to be closer to those of men (Green *et al.*, 2018).

There is considerable literature suggesting LGB+ employees are discriminated against in the labour market (Badgett, 1996; Badgett *et al.*, 2021) with lower rates of promotion and fewer management roles (Frank, 2006). The LGB+ are also more likely to seek employment in female dominated occupations associated with less productivity and lower pay (Plug *et al.*, 2014; Bridges and Mann, 2019). Nevertheless, empirical evidence of the relationship between sexual identity and job satisfaction is rare. Drydakis (2019a) presents survey results arguing that gay men experience lower levels of job satisfaction than male heterosexuals in Canada, Greece, Sweden and the US; and that lesbians have lower levels of job satisfaction relative to female heterosexuals in Canada, Greece and Sweden. Analogously, Fletcher *et al.* (2021) find LGBT+ workers in the UK are less likely to be satisfied with their job than heterosexuals (19 per cent compared to 15 per cent).

Sexual identity may be a hidden characteristic in the workplace if the employee chooses not to reveal (disclose) their preferences. LGB+ workers may choose to conceal their sexual identity if they fear stigmatism and discrimination (Goffman, 1963; Tajfel and Turner, 1979, page 281; Myer, 2013). Disclosure of sexual identity at work may, however, itself also impact on job satisfaction for LGB+ workers. Swann (2011) posits that people seek verification between their self-perception and the perceptions of others towards them. Disclosure can enable feelings of authenticity and improve social adhesion in the workplace; increasing identity pride, self-esteem, resilience, and mental health for LGB+ employees (Perrin *et al.*, 2020). It would appear that the relationship between disclosure of sexual identity and job satisfaction is ambiguous, and likely contingent on workplace conditions. Empirical evidence is again scarce, but evidence from Greece suggests gay men and lesbians who have disclosed their sexual identity in the workplace have higher job satisfaction than those who have not disclosed, although the size of these differences is small (Drydakis, 2015).

The pernicious nature of racial discrimination in workplaces is well documented in the literature (Heath and Di Stasio, 2019) but the direct empirical relationship between

ethnicity and job satisfaction is likewise still under researched. In an early UK study, Shields and Wheatley Price (2002) found non-white nurses who frequently faced racial harassment from work colleagues were seven times more likely to report job dissatisfaction, and those facing racial harassment from patients were four times more likely. Doede (2017) found that black and hispanic nurses in the US were considerably less likely to be satisfied with their jobs than were white nurses. Across broader occupation comparison, however, Campbell (2011) found that within the United States, neither race nor ethnicity is a reliable predictor of workers' satisfaction with any specific element of a job.

Having multiple stigmatised characteristics may compound the relationship between minority status and job satisfaction. Early work on the impact of the intersection of characteristics (Crenshaw, 1989) focussed on the implications of dual stigmatised identities for black women. Subsequent work has broadened awareness across a range of minority characteristics including LGB+ status (Frost and Myer, 2023). Empirical implications of intersectionality between gender, race and sexual identity have not been established for job satisfaction. Related studies, for example of job insecurity (Lavaysse *et al.*, 2018), suggest such intersections have complex impacts on employees and there may not necessarily be predictable associations with labour market outcomes (Raver and Nishi, 2010).

The risk (and experience) of negative outcomes in the work environment, including the occurrence and impact of discrimination, may be reduced by the presence of supportive workplace practices. Indeed, there is a very broad literature finding supportive work environments are positively associated with job satisfaction (Freeman, 1978; Shields and Ward, 2001; Huffman *et al.*, 2008; Hebl *et al.*, 2012; McFadden, 2015; Mumford and Sechel, 2019; Perales, 2022). Whilst the measures of workplace support vary across these studies, they generally include a range of indicators capturing social capital.

Established employee networks are an important component of workplace social capital. They facilitate a supportive work environment and enable transfer of social capital within minority groups in the workplace (Scrivens and Smith, 2013). Recent evidence shows that networks of members from the relevant minority group and their allies, are associated with greater appreciation and understanding of the minority group; a decrease in minority stressors; and a gain in wellbeing amongst the minority group (Perales, 2022). Network presence is expected to be positively associated with job satisfaction.

In contrast, the presence of bullying in the workplace can be considered as a failure of supportive workplace practices. There is considerable evidence showing that employees from minority groups – such as women (Salin and Hoel, 2013), the LGB (Hoel *et al.* 2022), and ethnic minorities (Lewis and Gunn, 2007) – are more likely to suffer from workplace bullying, and to encounter wellbeing losses from working in environments where bullying occurs (McFadden, 2015, page 142). There is also evidence that workplace bullying lowers job satisfaction for LGB+ employees (Drydakis, 2019b).

We seek to bring these strands in the literature together to provide a more detailed, and critically comparative, exploration of the determinants of job satisfaction for women, LGB+, and ethnic minorities. The remainder of the paper is structured as follows: the data are described in section 2; methodology and the estimation of the determinants

of job satisfaction are considered in section 3; results and discussions in section 4; and conclusions are presented in section 5.

Data and variables of interest

Data

To the best of our knowledge, the only data set that includes information on job satisfaction, pay, sexual orientation and disclosure, bullying and discrimination, and staff networks is the National Health Service Employee Engagement Survey (EES-NHS) in England. These employees are all covered by Agenda for Change contracts and the NHS Pay Review Board (NHSPRB)¹, which means doctors and dentists are excluded. The NHS is a particularly relevant workforce to survey as it is large enough to generate a suitably sized LGB+ sample for statistically meaningful analysis. Furthermore, NHS employees are all working in the public health sector where they share a common employer, with well recognised pay and working conditions. These commonalities help us to focus the empirical analysis presented below. Although, they may also limit extrapolation of the findings outside of the NHS to other more diverse workforces. This is a caveat that will be returned to in the discussion and interpretation of the results below.

The EES-NHS was launched in January 2019 and closed in May 2019; it is a fully pre-pandemic survey. The full sample taken from the EES-NHS includes 3,724 NHS employees. The NHS Digital's headcount data from September 2018² suggests that the potential sample frame was 1.19 million, implying a response rate of less than 1 per cent for the EES-NHS. In absolute terms, a sample of more than 3,700 employees is large enough for the development and testing of meaningful hypotheses. Nevertheless, such a low response rate raises obvious concerns that the sample may not reflect the population of NHS employees. Compared to the 2018 NHS-Staff Survey (NHS-SS), the EES-NHS sample has similar aggregate descriptive statistics including gender breakdown (with around 77 per cent women employees) and age distribution (Einarsdóttir *et al.*, 2020; Table 8). In terms of sexual orientation, however, the EES-NHS sample has a larger proportion of respondents declaring as LGB+ (12 per cent compared to 3.5 per cent) and fewer respondents opting for 'prefer not to say' (2.3 per cent relative to 6.5 per cent). This greater engagement is not surprising as LGBT+ labelling was included in the advertising for the EES-NHS survey. Comparing the EES-NHS with the National LGBT Survey suggests the former is broadly

1 <https://www.gov.uk/government/organisations/nhs-pay-review-body>

2 <https://digital.nhs.uk/data-and-information/publications/statistical/nhs-workforce-statistics/september-2018>

representative of the LGB+, given the focus of the former on employees in the NHS. For example, 78.2 per cent of respondents in the National LGBT Survey subsample were satisfied with their lives, and 70.9 per cent of the EES-NHS respondents are. Whilst 62.5 per cent of the National LGBT respondents said they were open about their sexuality with all or most co-workers, and 60.3 per cent did in the EES-NHS sample (see Einarsdóttir *et al.*, 2020, for more detailed comparison across these data sets).

Missing observations for variables used in the analysis below limits the usable sample from the EES-NHS to 3497 observations. As discussed above, one compensation for the overrepresentation of LGB+ employees in the EES-NHS sample is the inclusion of a reasonable number of observations in the analysis (435 LGB+).

Variable descriptions are provided in Table 1, further information regarding variable definitions and descriptive statistics is provided in Table A1 of the Appendix. Variable means are provided for the full sample (in column 1 of Table 1); for women (column 2); the LGB+ (column 3); and ethnic minorities (column 4). Statistically significant subgroup mean differences are indicated in Table 1 by bold font and a '+' (or '-') to show the minority value is higher (or lower) than the comparator group. More detailed information on the subgroup mean differences is provided in Table A2 of the Appendix.

Variables used in the analysis

Job satisfaction

The focus of this article is job satisfaction; it is the dependent variable throughout the analysis. The EES-NHS survey respondents were asked: "Overall how satisfied are you with your job these days?". There were five potential responses: extremely dissatisfied, somewhat dissatisfied, neither satisfied or dissatisfied, somewhat satisfied, or extremely satisfied. The responses are not evenly distanced from each other; even for a single individual the ranking is not necessarily cardinal. In aggregate, at best, the rankings may be considered as ordinal. Furthermore, the responses are not symmetric around the neutral mid-value (see Table 1), revealing that job satisfaction is not simply the inverse of job dissatisfaction and assuming that it could lead to incorrect interpretation of the results.

To avoid these possible measurement issues, a binary measure of job satisfaction is created and used as the dependent variable. It is set equal to one if the respondent is extremely or somewhat satisfied, and zero otherwise. Using this measure, some 53 per cent of the full sample report that they are satisfied with their job³.

3 This average value is similar to the level of job satisfaction found amongst academic economists in the UK in 2016 (Mumford and Sechel, 2019). Focussing on sexual identity, Fletcher *et al.* (2021) found 19 per cent of the LGBT+ in Britain were dissatisfied, we found 25 per cent for this group in our sample.

Demographic variables

The gender of choice from the survey respondents is used in the EES-NHS, this is clearly relevant for transgender respondents.⁴ There are 745 men and 2752 women in the full sample, with 2752 women in the woman only sample. Within group subsample differences (reported in the Appendix Table A2) reveals that 49 per cent of the men and 54 per cent of the women are satisfied with their job in our sample. These subgroup mean differences are statistically significant at standard confidence levels, as indicated by the bold formatting of the relevant means in Table A2. Survey respondents are also categorised as LGB+ in the EES-NHS according to their own choices. There are 435 LGB+ included in the sample, 296 gay or lesbian, 100 bisexual, and 39 in categories grouped together as plus. In our sample (on average) LGB+ employees are more likely to report job satisfaction (58 per cent) than heterosexuals (53 per cent). Those selecting as LGB+ were asked, 'What best describes how open you are about your sexuality/sexual orientation in your current job'. The possible responses are: give the heterosexual impression; not open at all; only reveal if asked; avoid drawing attention to it; make no secret about it; totally open. Those choosing that they make no secret about their sexual identity, or that they are totally open about it, are classified as disclosed. Just over half of the LGB+ employee sample have disclosed (51 per cent), with this disclosure more common amongst men (60 per cent) than women (42 per cent).

An ethnicity measure is also included and set equal to one if survey respondents selected Asian; Black; Arab; other Non-White; or Mixed to the question 'What is your ethnic background?' On average, ethnicity is associated with equal lowest job satisfaction (along with men) at 49 per cent compared to 54 per cent for the non-ethnic. This subgroup mean difference is again statistically significant at standard confidence levels (as indicated by bold font in Table A2).

The remaining demographic measures (age, having dependent children, living with partner, having a disability, and highest acquired education) may be considered primarily as control variables in the analysis, although they are also of interest in their own right. Mild associations have been found with age and job satisfaction, with younger woman workers being less satisfied with their jobs and older workers being more satisfied (O'Brien and Dowling, 2011). Clark (1997) finds that being married is positively associated with job satisfaction for women but not for men, and Guler (2024) finds that having dependent children, especially preschool children, increases job dissatisfaction for women but not for men. The majority of the work investigating the relationship between disability and job satisfaction has focused on alternative modes of employment. Recent findings, however, suggest the relationship between disability and job satisfaction for employees (as compared to the self-employed) is negative but small (Keating *et al.*,

4 There are 17 self-identifying transgender individuals included in the respondents, removing the transgender individuals from the sample does not change the findings in any substantial or statistically significant manner. Results without the transgender respondents are available from the authors upon request.

2022). The relationship between education and job satisfaction has been found to be weakly negative but becoming insignificant when additional indications of job stress are included amongst the regressors (Solomon *et al.*, 2022).

Job characteristics

Higher wages are commonly believed to help compensate for negative aspects related to working thereby increasing job satisfaction (Lavetti, 2023). The NHS employees are paid in twelve bands (or sub-bands) set by the government with advice from the NHS Pay Review Board (NHSPRB)⁵ and other parties. The average hourly own-wage measure is used below and is constructed from the mid-point of the employee's salary band, allowing for their usual working hours, adjusting for overtime hours (paid and unpaid), and expressed in natural logarithms. This hourly own wage (W) for individual i is denoted as W_i .

Workers may also care about their own wage relative to the wage of other comparable employees. They may gain utility (and be more likely to be satisfied with their job) from having an own wage that is relatively higher, or disutility (and greater likelihood of job dissatisfaction) from being relatively lower paid (Card *et al.*, 2012). An alternative argument is that workers view their co-workers wage as a signal of their own future wage growth (Clark *et al.*, 2009); seeing comparable workers earning higher wages would encourage them to think that their own wage will also increase in the future. These positive expectations would increase job satisfaction. Gender may also be important, Mumford and Smith (2015) find that higher own wage, and higher relative wage, is associated with higher job satisfaction for British men. In contrast, British women appear to care only about their own wage, with higher own wage increasing job satisfaction. In order to address the possible relationship between relative wage and job satisfaction, we include a relative wage measure (RW_i) equal to the difference in hourly own-wage (W_i ; see above) and the mean average hourly wage in the particular workers own occupation and age band (AW_{oa}), all divided by the mean hourly wage in the particular workers own occupation and age band (AW_{oa}): $RW_i = (W_i - AW_{oa}) / AW_{oa}$.

The remaining job characteristics include working part-time, having a permanent contract, having training opportunities, recent promotion, being a trade union member, often feeling under pressure, feeling overwhelmed at work, wanting to work less hours, and being able to maintain work-life balance. Liu and Zhang (2014) found part-time employees had lower levels of job satisfaction, especially if they worked more hours than they wanted to. We might expect that having a permanent contract, training opportunities and recent promotion all reflect employer approval, stronger job matching, and a higher likelihood of job satisfaction. The relationship between trade union membership and job satisfaction is not obvious. Being prepared to pay trade union membership fees may reflect poor working conditions and job dissatisfaction or a fear

5 <https://www.gov.uk/government/organisations/nhs-pay-review-body>

of future job dissatisfaction (Bessa *et al.*, 2021). Trade unions may, however, provide a range of services for their members, including a voice mechanism for the individual, that increasing job satisfaction (Freeman, 1978). Blanchflower and Bryson (2022) recently find trade union membership is associated with lower job satisfaction, although this relationship is small and not found for newer union members. Of the remaining job characteristics, feeling under pressure, feeling overwhelmed at work, and not being able to maintain work-life balance are all indications of employee stress; and are predicted to be negatively related to job satisfaction.

Measures of workplace support

The supportive workplace practice measures included in the analysis are: having supportive coworkers; being in a cooperative workplace; having a responsive supervisor; having an effective mentor or coach; feeling part of the family at their organisation; having influence over their job; and satisfaction with the quality of care they provide. (Additional definition of these variables can be found in Table A1 of the Appendix.) As discussed above, supportive workplace practices help to diminish the incidence, and the extent, of negative outcomes for employees in the work environment. We expect supportive work practices to be positively associated with job satisfaction (Freeman, 1978; Shields and Ward, 2001; Huffman *et al.*, 2008; Hebl *et al.*, 2012; McFadden, 2015; Mumford and Sechel, 2019; Perales, 2022). Notably, ethnic minorities in our sample report the lowest average values for all of these supportive workplace practices (see Table 1).

NHS workers are located in organisational units called Trusts, there are 203 individual Trusts included in the analysis. Trusts are grouped into several types by the NHS according to primary function and medical specialty (see Appendix Table A1), they are also categorised by region. We include a measure of relevant staff network existence in the Trust: the existence of a women's network in the Trust when considering the women only sample; LGBT+ network existence for the LGBT+ sample; and BAME network existence for the ethnic minority sample. When considering the total sample, the existence of any of these minority group staff networks in the worker's Trust is included. As discussed above, employee networks can facilitate a supportive work environment and ease the transfer of social capital within minority groups in the workplace. Recent evidence shows that networks of members from the relevant minority group, and their allies, are associated with greater appreciation and understanding of the minority group; a decrease in minority stressors; and a gain in wellbeing amongst the minority group (Perales, 2022). Network presence is expected to be positively associated with job satisfaction.

The final measures of supportive workplace practices address bullying and discrimination. There is considerable evidence showing that employees from minority groups are more likely to experience bullying and suffer hardship from working in environments where bullying occurs (McFadden, 2015, page 142). We expect workplace bullying to be associated with lower levels of job satisfaction. We include two measures to help reflect this possibility at (i) the individual level and (ii) the broader environment context. In recognition that the understanding of what constitutes bullying may not

be uniform, the EES-NHS questions on bullying were preempted with the statement: "Bullying at work involves repeated negative actions and practices that are directed at one or more workers/employees. The behaviours are unwelcome to the victim and undertaken in circumstances where the victim has difficulty defending themselves. We do not think of one-off incidents as bullying".

At the individual level we create a bullying index ranging from 0 to 3: coded with one point for each of: having been "bullied at work in the last six months" (some 22 per cent have); "witnessed bullying at work" (51 per cent have); or "been subject to discrimination in the last 12 months" (17 per cent have). On average, less than a third of workers have had encountered one type of these negative experiences recently, 37 per cent have had no experience and 35 per cent have encountered two or more. Reflecting the broader work environment, a categorical variable capturing "do you think the measures your organisation takes to prevent bullying or discrimination are effective" is included, ranging from not effective at all (22 per cent), slightly effective (17 per cent), moderately effective (37 per cent), to very or extremely effective (21 per cent). Ethnic minorities are more likely to experience bullying or discrimination personally, and more likely to rate their organisation's measures to prevent this behaviour as ineffective. We expect job satisfaction will be negatively related to higher bullying index outcomes and to less effective bullying reduction measures.

Trust characteristics

The Trust controls included in the analysis are variables that are common to all workers in that Trust that can vary across Trusts; they are measures of regional location and Trust type. The Trust measures are primarily included as control variables in the analysis. There are five regions: the north of England; Midlands and the east of England; London; the south-west; and the south-east. Compared to heterosexuals (see Appendix Table A2), LGB+ employees are substantially more likely to be located in London (24 per cent compared to 14 per cent) or, to a lesser extent, the south-east; whereas they are less likely to work in the Midlands or east of England, or the south-west. The concentration in London is even more extreme for ethnic minorities, 46 per cent work in London compared to 11 per cent of the white respondents; whilst they are less likely to be located in the north of England, the Midlands or the east of England, or the south-west. The trends for women compared to men are quite different. Women are slightly less likely to work in London (15 per cent for women, 18 per cent for men) and the south-east, and they are more likely to be located in the Midlands or the east of England. There are seven Trust types included, of particular note is the concentration of LGB+ working in the Ambulance Trusts and the prevalence of ethnic minorities employed in the Mental Health Trusts.

Summary of cross group differences

Considering the information presented in Table 1 in more detail. The NHS is a female dominated work environment: some 79 per cent of the workforce are women (see Table

1). Compared to the men, the women in our sample are on average less likely to identify as LGB+ or ethnic, they are older, earn less, are considerably more likely to work part-time, be satisfied with their training, belong to a trade union, and feel overwhelmed at work. The women are also more likely to have a mentor, feel part of the work family, have influence over their work, and be satisfied with the quality of care provided. However, the women are less likely to have a staff network, and they have (perhaps surprising) experienced less workplace bullying than the men (see Table 1, column 2).

LGB+ employees in our sample are on average younger than heterosexuals, they are less likely to be a woman, be living with their partner, or have dependent children. They are less likely to work part-time, and are more likely to have been recently promoted, work in cooperative workplaces and to have a staff network. On average, ethnic minorities are younger than whites, they have more dependent children, are less likely to live with their partner and are more likely to be graduates. Ethnic minorities tend to earn more, are less likely to work part-time and more likely to feel overwhelmed at work. They are, on average, less likely to report having supportive workplace practices in their work environment, except for having a staff network. Ethnic minorities also consistently report experiencing more bullying and that their workplace measures to prevent bullying are not effective. We next consider the formal estimation of the determinants of job satisfaction.

Methodology and estimation

We estimate the probability that individual i is satisfied with their job (S_i) conditional on a range of observable characteristics expected to predict that probability. Probit regressions are estimated for the total sample, and for the subsamples of interest, with the latent dependent variable (job satisfaction, S_i) set equal to 1 if the individual responds they are somewhat satisfied or extremely satisfied with their job, and zero otherwise. The probit models the relationship between the probability of satisfaction and its determinants as

$$Pr(S_i = 1) = \theta(\beta X_i) \quad (1)$$

where X_i is a vector of explanatory variables and θ is the standard normal distribution function (Maddala 1992; 327).

We begin with a parsimonious model which includes the demographic and job characteristics but excludes the workplace support measures (all discussed in Section 2 above). Selected estimation results are presented in Table 2. We next include the workplace support measures in our preferred 'full' model, with selected results presented in Table 3 (complete results are provided in Table A3 of the Appendix). The more intuitive marginal effects at the means of the explanatory variables are reported in Tables 2 and 3 with differential effects for the binary variables. Results for the total sample are reported in

column 1 of Tables 2 and 3. While, columns 2 to 4 of Tables 2 and 3 provide results for the subsamples of interest: women (column 2), the LGB+ (column 3), and ethnic minorities (column 4). With a single cross section of data, such as the EES-NHS, the results should not be interpreted as causal; they indicate the direction and strength of the relationship between each determinant variable and job satisfaction.

Results and discussion



Considering the results for the parsimonious model (Table 2) in more detail, amongst the demographic variables, women are 6.4 per cent more likely to be satisfied with their job in the total sample results (see column 1 of Table 2); the size of this gap is arguably not large compared to historical studies (Green *et al.*, 2018), but it is clearly statistically significant. This result is consistent with findings from previous studies that women are more satisfied with their jobs than men, but this gender gap has become smaller over time as women's expectations of work move closer to those of men (Clark, 1997; Mumford and Smith, 2015; Green *et al.*, 2018). Comparing columns 1 and 2 of Table 2 reveals that the other results are typically not statistically significantly different between the total sample (column 1) and the woman only sample (column 2); this finding may further support the claim that the gender gap in job satisfaction is related to differences in expectations rather than characteristics.

Being either an ethnic minority or LGB+ employee is not found to be statistically related to job satisfaction in the total sample estimations (column 1). However, ethnic LGB+ employees are 20.1 per cent more likely to be satisfied than heterosexual ethnic employees (column 4), and ethnic LGB+ employees are 13 per cent more likely to be satisfied than white LGB+ employees (column 3); suggesting that this intersection effect may be important and supporting separate estimation for these major demographic groups. This point will be returned to in discussions of the full model below. The relationship between disclosure of sexual identity and job satisfaction is small, negative and not statistically significant. In net terms, this finding does not support the argument that positive aspects related to disclosure outweigh the stressors associated with stigmatism for this minority group in our sample. Age appears to have a negative but very small relationship with job satisfaction. There is also evidence that women and ethnic minorities who are living with their partner are more likely to report job satisfaction.

Amongst the job characteristics, we find some evidence supporting the standard utility wage model. In particular, employees are more likely to be satisfied with their jobs if they have higher own earnings. This relationship is not, however, statistically significant for either LGB+ or ethnic minorities. The relationship with relative wage is smaller, inconsistent, and is only statistically significantly different to zero for women. Taken as a whole, this may suggest that the minority groups are not competing with their comparators over relative wage (Mumford and Smith, 2015). Having a permanent

job is associated with less job satisfaction for ethnic minorities, as is working part-time. Furthermore, and consistent with the priors, being satisfied with training, being recently promoted, maintaining work-life balance or not feeling overwhelmed with work are positively associated with job satisfaction for all groups.

Introducing the measures of supportive workplace practices, discussed in section 2 above, into the model (see the full model results in Table 3) generally leads to (statistically insignificant) decreases in the estimated marginal effects suggesting, unsurprisingly, some correlation between some demographic groups (especially women), job characteristics (such as having training, recent promotion, having work-life balance and feeling overwhelmed) and the measures of supportive workplace practices. Nevertheless, including measures of supportive workplace practices increases the overall model fit considerably (for example, comparing the pseudo R-square of 0.2726 for the parsimonious model in column 1 of Table 2, with the pseudo R-square of 0.4407 for the full model in column 1 of Table 3) revealing that, in aggregate, the supportive workplace measures are contributing additionally and substantially to the explanation of job satisfaction.

Considering the additional results in the full model in Table 3 in more detail, the measures of supportive workplace practices are all associated with women being more likely to report job satisfaction (see Table 3), especially strong is the effect of feeling part of the family at work; working in a cooperative workplace; and having influence over job. Having a network staff network in the Trust is also important. Women in Trusts with a staff gender network are 6.2 per cent more likely to report job satisfaction. The results for LGB+ employees are similar although having supportive colleagues is not as important whereas working in a cooperative workplace, having a responsive supervisor, having a mentor and not feeling overwhelmed are all more strongly related to higher job satisfaction. Furthermore, LGB+ workers in Trusts with a LGBT+ staff network are 13.6 per cent more likely to report satisfaction, twice the likelihood found for women of 6.2 per cent. This is the strongest effect found for any job or workplace determinant of job satisfaction for the LGB+ sample, revealing a strong policy role for organisations to facilitate the provision of minority staff networks.

In contrast, there is an insubstantial and insignificant relationship found between the presence of a BAME staff network in the worker's Trust and job satisfaction for the ethnic minority; despite this group being the most likely to say that a staff network was available in their Trust (see Table 1). This result may be, at least partially, due to heterogeneity amongst the ethnic minorities not being reflected in the BAME staff network that is available at their Trust.⁶ The only supportive workplace practice measures found to be significantly related to job satisfaction for ethnic minorities are having a mentor,

6 This is also true if relevant staff network membership, rather than network existence, is considered. Ethnic minorities who are members of an ethnic minority staff network at their Trust are 2 per cent more likely to report job satisfaction, however, this result is not statistically significant at standard confidence levels. Full results are available upon request from the authors.

feeling part of the family, and having job influence. These relationships are all strong but, taken as a whole, these results suggest that ethnic minorities are not as included, nor as supported, in their work environments as are the other minority employees.

Finally, believing the organisation has effective measures to prevent bullying and or discrimination are broadly associated with more reported job satisfaction for women. For ethnic minorities and LGB+ employees this relationship is only statistically significant when the organisation's prevention policies are considered to be very or extremely effective. While experiencing bullying and/or discrimination is associated with all worker groups being less likely to report job satisfaction (with a similar sized, but not statistically significant, relationship for ethnic minorities).⁷

There is some evidence in both the parsimonious (Table 2) and the full model (Table 3) results that intersection between LGB+ and ethnic minority status is associated with higher job satisfaction. To further explore this, as well as address possible intersection effects with gender, three two-way interactive terms (gender*LGB+, gender*ethnicity, ethnicity*LGB+) were included in the full model (see column 2 of Appendix Table A4); and the three-way interactive term (gender*LGB+*ethnicity) also additionally included (see column 3 of Appendix Table A4). While further evidence of a statistically significant intersection effect between LGB+ status and being an ethnic minority is found (see coefficient estimates in Appendix Table A5 and also the table notes for Appendix Table A4), including this term and/or the other interactive terms is not found to change the results either qualitatively or quantitatively (as shown by reading across the columns in Table A4).

Using the EES-NHS data allows us to include a broad range of explanatory variables in the analysis, this helps to control for omitted variable bias and possible endogeneity. However, there are also limitations with the data which may influence interpretation of the findings. For example, all of the employees in the sample have accepted jobs in the public health sector (the NHS), this is a possible self-selection effect in the analysis for which we do not have a suitable control measure. It may be that (at least some) individuals who select into employment in this sector have a vocation or an intrinsic motivation to provide care (Heyes, 2005). These individuals may have stronger preferences (and higher job satisfaction) associated with inclusion, equity and collegial support than those found in other sectors. In aggregate, these employees might also be less motivated by pay, especially relative pay. Not being able to control for this possible self-selection effect limits extrapolation of the findings to other sectors. Furthermore, while the EES-NHS sample size is large enough for statistically meaningful analysis, the survey response rate is low and the sampling process is not fully random, both of which may limit the extrapolation of the findings across the full NHS workforce. The goodness of fit measures presented in Table 3 suggest the full model estimations are reasonable

7 We also include results for the subsample of nurses for all descriptive statistics and estimations in the Appendix. Insubstantial, and generally statistically insignificant, differences were found comparing nurses with the woman subsample; the analysis presented in this article focuses on women accordingly.

but are only capturing some 44 per cent of the total variation in job satisfaction. There are clearly other factors affecting job satisfaction that are not included in our modelling.

In an ideal scenario, equivalent data sets to the EES-NHS would exist for other countries, including Australia, enabling critical international modelling of job satisfaction. To the best of our knowledge, however, no comparable international data exists. We might expect our results from the NHS to have some relevance to the Australian public health sector. Both sectors share similar occupation definitions and training requirements, work task allocation, patient health requirements, and a reliance on immigrant labour. However, the private health sector is relatively larger in Australia, and the public sector is more highly funded (per population head) across a range of measures, resulting in substantially better patient outcomes in Australia than England (Anandaciva, 2023) and higher associated job satisfaction levels (Dattoli and Cohidon, 2025).

To reiterate, the EES-NHS survey provides only a single cross section of data for public health sector workers in England. It allows for an exceptionally broad range of explanatory variables, as in our analysis, which could reasonably be expected to capture some potential omitted variable bias. Nevertheless, low survey response rates and the focus of the data exclusively on the English public health sector limits the generality of the results. Furthermore, it is not possible to identify causality with cross-sectional data such as that used in this article, however, the results do show clear observational relationships.

Conclusion



This study explores job satisfaction amongst a sample of National Health Service (NHS) employees in England. This is a particularly relevant workforce to consider as it is large enough to generate suitable LGB+ and ethnic samples for statistically meaningful analysis. Furthermore, the respondents are all working in the public health sector where they share a common employer, with well recognised pay and working conditions.

Women are found to be more likely to be satisfied with their jobs, however, this gender gap is not large. Taken as a whole, the results are in accordance with other recent findings suggesting women's job satisfaction levels are becoming similar to men's as women's job expectations are moving towards those of men. LGB+ employees who are an ethnic minority (or ethnic minorities who identify as LGB+) are also found to be more likely to be satisfied with their current job. In contrast to our predictions, workers who have disclosed minority sexual identity to their workplace colleagues are not found to have higher levels of job satisfaction. The determinants of the decision to disclose sexual identity to work colleagues is under researched; our results suggest that this is clearly a potentially fruitful area for future research.

Unsurprisingly, higher own-wage is associated with higher job satisfaction for the NHS workers in the sample, consistent with standard labour economic theories of

wage determination. The finding of no clear pattern between relative wages and job satisfaction indicates that these workers are not competing about their relative wages. This muted response to the pay of comparator colleagues may be influenced by the cross-occupation job-team tasking commonly used in public health sector workplaces.

Supportive workplace practices are strongly related to higher rates of job satisfaction, less so for the ethnic minorities. In common across all the groups, experiencing bullying or discrimination in the workplace is associated with decreased likelihood of job satisfaction. Furthermore, simply having measures to prevent bullying and/or discrimination is not enough to improve job satisfaction. It is only when these measures are considered to be very or extremely effective that ethnic minority or LGB+ workers report significantly more job satisfaction. These results have obvious implications for policy implementation for health sector managers. Of particular importance amongst the supportive workplace measures is the existence of relevant staff networks. Women are 6.2 per cent more likely to report job satisfaction when they have a staff network; LGB+ employees are 13 per cent more likely to. This is the strongest effect found for any determinant of job satisfaction for those identifying as LGB+; revealing a further policy role for organisations to facilitate the provision of minority staff networks.

A cautionary finding is that the results reveal low job satisfaction, low inclusion, and low levels of workplace support for the ethnic minorities. This is a concerning finding for a sizable proportion of the workers in the sample and suggests that the provision of supportive workplace practices is not extended fully across all minority groups.

The conclusions are valid for the sample of NHS employees addressed in this study. The sampling process was not random and, while the sample sizes are reasonable, they are small relative to the sampling population. Both factors limit extrapolation of the findings across the NHS or to a broader social context and suggest a need for additional studies. It is also not possible to identify causality between job satisfaction and the explanatory variables used in this paper, however, the results do show clear observational relationships.

Nevertheless, this article provides important new evidence, revealing limited job satisfaction amongst women, ethnic minority, and LGB+ employees. By encouraging supportive workplace practices across all employees, having effective anti-bullying and discrimination policies, and (especially) facilitating minority staff networks, managers can further improve these levels of job satisfaction.

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Table 1. Variable means

	(1) Total	(2) Women	(3) LGB+	(4) Ethnic
Job satisfaction				
extremely dissatisfied	0.08	<i>0.08-</i>	<i>0.05-</i>	<i>0.13+</i>
somewhat dissatisfied	0.22	0.22	0.20	0.19
neither satisfied nor dissatisfied	0.15	<i>0.14-</i>	0.15	<i>0.18+</i>
somewhat satisfied	0.41	<i>0.42+</i>	0.44	0.37
extremely satisfied	0.11	0.11	0.12	0.10
job satisfaction binary	0.53	<i>0.54+</i>	<i>0.58+</i>	<i>0.49-</i>
Demographics				
woman	0.79		<i>0.52-</i>	<i>0.72-</i>
LGB+	0.12	<i>0.08-</i>		0.10
disclose	0.06	<i>0.03-</i>	0.51	<i>0.04-</i>
ethnic	0.12	<i>0.11-</i>	0.09	
age	46.14	<i>46.45+</i>	<i>41.32-</i>	<i>45.09-</i>
dependent children	0.32	0.32	<i>0.15-</i>	<i>0.41+</i>
living together	0.69	0.68	<i>0.57-</i>	<i>0.62-</i>
disability	0.36	0.35	<i>0.45+</i>	<i>0.29-</i>
Qualifications, highest acquired				
minimal	0.05	0.05	<i>0.02-</i>	<i>0.02-</i>
GCSE grades A-C	0.08	<i>0.09+</i>	<i>0.05-</i>	<i>0.05-</i>
Trade	0.004	<i>0.002-</i>	0.002	0.002
A levels	0.09	0.09	0.10	<i>0.05-</i>
Diploma	0.16	0.16	0.16	<i>0.12-</i>
First degree	0.30	0.30	0.31	<i>0.34+</i>
Higher degree	0.28	0.28	<i>0.32</i>	<i>0.37+</i>
Job characteristics				
own-wage	2.74	<i>2.73-</i>	2.75	<i>2.81+</i>
relative-wage	0.001	<i>-0.01-</i>	<i>0.02+</i>	<i>0.05+</i>
part-time	0.24	<i>0.28+</i>	<i>0.11-</i>	<i>0.15-</i>
job permanent	0.93	0.93	0.93	0.91
training	0.52	<i>0.54+</i>	0.53	0.50
promotions	0.36	0.36	<i>0.42+</i>	0.38
trade union	0.57	<i>0.58+</i>	0.57	0.58
pressure	0.56	0.56	0.54	0.59
overwhelmed	0.38	<i>0.39+</i>	0.36	<i>0.42+</i>
wants to works less	0.50	0.51	0.49	0.51
can maintain work-life balance	0.59	0.59	0.60	0.55

continued

Table 1. Variable means

	(1) Total	(2) Women	(3) LGB+	(4) Ethnic
Supportive workplace measures				
supportive colleagues	0.77	0.77	0.80	<i>0.64-</i>
cooperative workplace	0.39	0.39	0.43+	0.33-
supervisor responsive	0.61	0.62	0.60	0.57
mentor	0.46	0.48+	0.46	0.38-
part of the family	0.44	0.45+	0.44	0.35-
influence	0.52	0.53+	0.51	0.50
quality of care	0.64	0.65+	0.67	0.65
network exists	0.48	0.46-	0.74+	0.70+
measures to prevent bullying				
not effective	0.22	0.22	0.20	0.30+
slightly effective	0.17	0.18	0.17	0.22+
moderately effective	0.37	0.37	0.39	0.30-
very or extremely effective	0.21	0.21	0.23	0.17-
bullying index	1.14	1.12-	1.17	1.60+
NHS England Region				
North of England	0.23	0.23	0.23	0.10-
Midlands and East of England	0.32	0.34+	0.25-	0.19-
London	0.15	0.15-	0.24+	0.46+
South West	0.11	0.11	0.06-	0.05-
South East	0.16	0.15-	0.19+	0.17
Trust type				
Acute Specialist	0.02	0.01-	0.05+	0.01
Acute Trusts	0.50	0.50	0.38-	0.48
Ambulance	0.01	0.009-	0.04+	0.007
Combined Acute and Community	0.12	0.12	0.11	0.08-
Combined Mental Health/Learning Dis	0.08	0.09+	0.11+	0.16+
Community	0.10	0.11+	0.08	0.05-
Mental Health/Learning Disability	0.14	0.13	0.20	0.18+
Observations	3497	2752	435	403

Table 2. Probability of job satisfaction excluding supportive workplace measures, selected results, marginal effects

	(1) Total	(2) Women	(3) LGB+	(4) Ethnic
Demographics				
woman	0.064***		0.043	0.058
LGB+	0.036	0.033		0.201***
disclose			0.0625	
ethnic	-0.022	-0.025	0.130**	
age	-0.001***	-0.002***	-0.004**	-0.002
dependent children	0.004	0.007	0.108*	0.028
living together	0.045***	0.035**	0.002	0.090**
disability	0.009	0.002	0.031	0.047
Job characteristics				
own-wage	0.166***	0.208***	0.077	0.169
relative-wage	-0.056	-0.101**	0.024	-0.032
job permanent	-0.027	-0.025	0.007	-0.183**
training	0.308***	0.307***	0.252***	0.284***
promotion	0.087***	0.088***	0.125**	0.106***
trade union	-0.023	-0.037**	-0.032	0.034
part-time	-0.007	-0.005	-0.092	-0.086*
works less	-0.045***	-0.039**	-0.113**	-0.031
work-life balance	0.205***	0.215***	0.183***	0.245***
pressure	-0.038**	-0.043*	-0.028	-0.045
overwhelmed	-0.157***	-0.135***	-0.177***	-0.162***
Qualifications	√	√	√	√
Region	√	√	√	√
Trust type	√	√	√	√
Observations	3497	2752	435	403
Pseudo R-squared	0.2726	0.2736	0.2667	0.3321

Standard errors in parentheses
 *p<0.10, **p<0.05, ***p<0.001

Table 3. Probability of job satisfaction, full model, selected results, marginal effects

	(1) Total	(2) Women	(3) LGB+	(4) Ethnic
Demographics				
woman	0.046***		0.019	0.047
LGB+	0.025	0.019		0.201***
disclose			-0.023	
ethnic	0.009	0.005	0.146***	
age	-0.001**	-0.001**	-0.005***	-0.002
dependent children	-0.008	-0.005	0.074	0.014
living together	0.025**	0.023*	0.002	0.026
disability	0.015	0.011	0.010	0.025
Job characteristics				
own-wage	0.058*	0.065*	0.060	0.0516
relative-wage	-0.024	-0.044	-0.031	0.057
job permanent	-0.038*	-0.045**	0.031	-0.148**
training	0.078***	0.076***	0.073*	0.062*
promotion	0.039**	0.041**	0.067*	0.046
trade union	-0.0007	-0.009	-0.009	0.026
part-time	0.001	0.0005	-0.065	-0.047
works less	-0.022*	-0.018	-0.089**	0.008
work-life balance	0.093***	0.097***	0.075**	0.110***
pressure	0.004	-0.009	0.048	0.014
overwhelmed	-0.088***	-0.068***	-0.114***	-0.101**
Supportive workplace measures				
supportive colleagues	0.042**	0.049***	0.035	0.023
cooperative workplace	0.093***	0.094***	0.122***	0.019
supervisor responsive	0.056***	0.045**	0.102**	0.075
mentor	0.074***	0.073***	0.101***	0.102***
part of the family	0.104***	0.094***	0.0985**	0.152**
influence	0.150***	0.151***	0.093**	0.181***
quality of care	0.093***	0.096***	0.075*	0.048
network exists	0.065***	0.062***	0.133***	0.008
Measures to prevent bullying (omitted category: not effective)				
slightly effective	0.032*	0.036*	-0.064	0.054
moderately effective	0.047***	0.051***	-0.011	0.054
very or extremely	0.076***	0.085***	0.109*	0.122*
bullying index	-0.020***	-0.022***	-0.031*	-0.026
Qualifications	√	√	√	√
Region	√	√	√	√
Trust type	√	√	√	√
Observations	3497	2752	435	403
Pseudo R-squared	0.4407	0.4412	0.4383	0.4879

Standard errors in parentheses
 *p<0.10, **p<0.05, ***p<0

Appendix

Table A1. Variable definitions

Variable	Definition
Job satisfaction	
Overall, how satisfied are you with your job these days?	extremely dissatisfied somewhat dissatisfied neither satisfied nor dissatisfied somewhat satisfied extremely satisfied
job satisfaction	Somewhat satisfied or extremely satisfied with job.
Demographics	
gender	Response to 'What best describes your gender?'
LGB+	Respondent chose Lesbian, Gay, Bisexual or Plus to 'Which of the following best describes how you think of yourself?'
disclose	Open about sexuality at workplace.
ethnic	Member of an ethnic minority. Selected Asian; Black; Arab; Other Non White; or Mixed to 'What is your ethnic background?'
age	Age of respondent.
dependent children	Has dependent children (aged 0-18).
living together	Living with partner.
disability	Long-standing illness, health problem or disability.
Qualifications, highest acquired	
minimal	O level or GCSE grades D-G, or below, or not recognised. These national exams are typically taken at age 16.
GCSE grades A-C	O level or GCSE grades A-C. These national exams are typically taken at age 16.
Trade	Trade apprenticeships.
A levels	A levels. These national exams are taken at the completion of secondary school, typically at age 18.
Diploma	Diploma in higher education, teaching qual. and others.
First degree	First degree and PGCE.
Higher degree	Higher degree or postgraduate.
Job characteristics	
own-wage	Average hourly pay in GBP, full time equivalent, (log).
relative-wage	Relative wage by occupation and age category (log).
part-time	Part-time work.
job permanent	Has a permanent contract.
training	Somewhat or extremely satisfied with training received.
continued	

Table A1. Variable definitions

Variable	Definition
Job characteristics cont.	
promotion	Has been promoted.
trade union	Member of a trade union.
pressure	Job makes feel pressure always or often.
overwhelmed	Job makes feel overwhelmed always or often.
work less	Prefers to work less hours.
work-life balance	Somewhat or strongly agrees maintain work-life balance.
Supportive workplace measures	
supportive colleagues	Somewhat or strongly agrees the people worked with are supportive.
cooperative workplace	Feels workplace is cooperative.
supervisor responsive	Somewhat or strongly agrees supervisor responds to their suggestions.
mentor	Has mentor/coach for work advice.
part of the family	Somewhat or strongly agrees they feel part of the family at this organisation.
influence	Somewhat or extremely satisfied with the amount of influence has over job.
quality of care	Somewhat or strongly agrees is satisfied with the quality of care given to patients/service-users.
network exists	Staff network exists in their Trust
bullying index	Bullied, witnessed bullying and/or subject to discrimination.
Measures to prevent bullying	
Do you think the measure your organisation takes to prevent bullying/discrimination are effective?	
	not effective
	slightly effective
	moderately effective
	very or extremely effective
Workplace controls	
NHS England region	
	North of England
	Midlands and East of England
	London
	South West
	South East
Trust type	
	Acute Specialist Trusts
	Acute Trusts
	Ambulance Trusts
	Combined Acute and Community Trusts
	Combined. Mental Health / Learning Disability
	Community Trusts
	Mental Health / Learning Disability Trusts

Table A2. Means of variables by gender, nursing occupation, sexual orientation and ethnicity

	Gender		Nurse		Sexual orientation		Ethnicity		
	Total	Men	Women	Yes	No	LGB+	Hetero	Ethnic	Non-Ethnic
Job satisfaction									
extremely dissatisfied	0.08	<i>0.11</i>	<i>0.08</i>	0.08	0.09	<i>0.05</i>	<i>0.09</i>	<i>0.13</i>	<i>0.08</i>
somewhat dissatisfied	0.22	0.21	0.22	0.21	0.22	0.20	0.22	0.19	0.22
neither satisfied nor dissatisfied	0.15	0.17	0.14	0.15	0.15	0.15	0.15	0.18	0.15
somewhat satisfied	0.41	0.38	0.42	0.42	0.41	0.44	0.41	0.37	0.42
extremely satisfied	0.11	0.10	0.11	0.11	0.11	0.12	0.11	0.10	0.11
job satisfaction binary	0.53	<i>0.49</i>	<i>0.54</i>	0.54	0.53	0.58	0.53	<i>0.49</i>	<i>0.54</i>
Demographics									
woman	0.79			<i>0.88</i>	<i>0.76</i>	<i>0.52</i>	<i>0.82</i>	<i>0.72</i>	<i>0.80</i>
LGB+	0.12	<i>0.28</i>	<i>0.08</i>	0.11	0.13			0.10	0.13
disclose	0.06	<i>0.17</i>	<i>0.03</i>	0.06	0.07			0.04	0.07
ethnic	0.12	<i>0.15</i>	<i>0.11</i>	0.13	0.11	0.09	0.12		
age	46.14 (11.44)	44.98 (11.78)	46.45 (11.33)	47.35 (10.45)	45.73 (11.73)	41.32 (11.24)	46.82 (11.31)	45.09 (10.87)	46.27 (11.51)
dependent children	0.32	0.30	0.32	<i>0.38</i>	<i>0.30</i>	<i>0.15</i>	<i>0.34</i>	<i>0.41</i>	<i>0.31</i>
living together	0.69	0.69	0.68	0.70	0.68	<i>0.57</i>	<i>0.70</i>	<i>0.62</i>	<i>0.70</i>
disability	0.36	0.37	0.35	<i>0.33</i>	<i>0.36</i>	<i>0.45</i>	<i>0.34</i>	<i>0.29</i>	<i>0.36</i>

continued

Table A2. Means of variables by gender, nursing occupation, sexual orientation and ethnicity

	Gender			Nurse		Sexual orientation		Ethnicity	
	Total	Men	Women	Yes	No	LGB+	Hetero	Ethnic	Non-Ethnic
Qualifications, highest acquired									
minimal	0.05	0.05	0.05	<i>0.007</i>	<i>0.07</i>	<i>0.02</i>	<i>0.06</i>	<i>0.02</i>	<i>0.06</i>
GCSE grades A-C	0.08	0.07	0.09	<i>0.01</i>	<i>0.11</i>	<i>0.05</i>	<i>0.09</i>	<i>0.05</i>	<i>0.09</i>
Trade	0.004	0.01	0.002		0.006	0.002	0.004	0.002	0.004
A levels	0.09	0.10	0.09	<i>0.009</i>	<i>0.12</i>	0.10	0.09	0.05	0.10
Diploma	0.16	0.17	0.16	<i>0.27</i>	<i>0.12</i>	0.16	0.16	<i>0.12</i>	<i>0.17</i>
First degree	0.30	0.31	0.30	<i>0.38</i>	<i>0.27</i>	0.31	0.30	0.34	0.29
Higher degree	0.28	0.27	0.28	<i>0.30</i>	<i>0.27</i>	0.32	0.27	0.37	0.26
Job characteristics									
own-wage	2.74 (0.36)	2.78 (0.38)	2.73 (0.35)	2.89 (0.22)	2.69 (0.38)	2.75 (0.36)	2.74 (0.36)	2.81 (0.35)	2.73 (0.36)
relative-wage	0.001 (0.29)	0.04 (0.32)	-0.01 (0.28)	0.00 (0.21)	0.00 (0.31)	0.02 (0.29)	-0.002 (0.29)	0.05 (0.29)	-0.01 (0.29)
part-time	0.24	0.08	0.28	0.24	0.23	0.11	0.25	0.15	0.25
job permanent	0.93	0.92	0.93	0.95	0.92	0.93	0.93	0.91	0.93
training	0.52	0.46	0.54	0.61	0.49	0.53	0.52	0.50	0.52
promotions	0.36	0.36	0.36	0.42	0.34	0.42	0.36	0.38	0.36
trade union	0.57	0.53	0.58	0.90	0.46	0.57	0.57	0.58	0.57
pressure	0.56	0.55	0.56	0.63	0.53	0.54	0.56	0.59	0.55
overwhelmed	0.38	0.33	0.39	0.44	0.36	0.36	0.38	0.42	0.37

continued

Table A2. Means of variables by gender, nursing occupation, sexual orientation and ethnicity

	Gender			Nurse		Sexual orientation		Ethnicity	
	Total	Men	Women	Yes	No	LGB+	Hetero	Ethnic	Non-Ethnic
Job characteristics cont.									
works less	0.50	0.48	0.51	0.52	0.50	0.49	0.50	0.51	0.50
work-life balance	0.59	0.59	0.59	0.53	0.61	0.60	0.58	0.55	0.59
Supportive workplace measures									
supportive colleagues	0.77	0.75	0.77	0.79	0.76	0.80	0.76	0.64	0.78
cooperative workplace	0.39	0.41	0.39	0.40	0.39	0.43	0.39	0.33	0.40
supervisor responsive	0.61	0.59	0.62	0.58	0.62	0.60	0.61	0.57	0.62
mentor	0.46	0.42	0.48	0.51	0.45	0.46	0.47	0.38	0.47
part of the family	0.44	0.40	0.45	0.44	0.44	0.44	0.44	0.35	0.45
influence	0.52	0.49	0.53	0.52	0.52	0.51	0.52	0.50	0.53
quality of care	0.64	0.60	0.65	0.68	0.63	0.67	0.64	0.65	0.64
bullying index	1.14	1.20	1.12	1.22	1.11	1.17	1.13	1.60	1.08
measures to prevent bullying									
not effective	0.22	0.24	0.22	0.23	0.22	0.20	0.23	0.30	0.21
slightly effective	0.17	0.17	0.18	0.20	0.17	0.17	0.18	0.22	0.17
moderately effective	0.37	0.35	0.37	0.35	0.38	0.39	0.37	0.30	0.38
very or extremely effective	0.21	0.22	0.21	0.20	0.22	0.23	0.21	0.17	0.22
network exists	0.48	0.54	0.46	0.50	0.47	0.74	0.44	0.70	0.45
LGB+ network membership						0.36	0.04		

continued

Table A2. Means of variables by gender, nursing occupation, sexual orientation and ethnicity

	Total	Gender		Nurse		Sexual orientation		Ethnicity	
		Men	Women	Yes	No	LGB+	Hetero	Ethnic	Non-Ethnic
Supportive workplace measures cont.									
women's network membership		0.01	0.03						
ethnic network membership								<i>0.34</i>	<i>0.03</i>
Workplace controls									
NHS England region									
North of England	0.23	0.23	0.23	0.21	0.24	0.23	0.23	<i>0.10</i>	<i>0.25</i>
Midlands and East of England	0.32	<i>0.28</i>	<i>0.34</i>	<i>0.35</i>	<i>0.32</i>	<i>0.25</i>	<i>0.33</i>	<i>0.19</i>	<i>0.34</i>
London	0.15	<i>0.18</i>	<i>0.15</i>	0.16	0.15	<i>0.24</i>	<i>0.14</i>	<i>0.46</i>	<i>0.11</i>
South West	0.11	0.11	0.11	0.10	0.12	<i>0.06</i>	<i>0.12</i>	<i>0.05</i>	<i>0.12</i>
South East	0.16	<i>0.18</i>	<i>0.15</i>	0.15	0.16	<i>0.19</i>	<i>0.15</i>	0.17	0.15
Trust type									
Acute Specialist	0.02	<i>0.04</i>	<i>0.01</i>	0.02	0.02	<i>0.05</i>	<i>0.01</i>	0.01	0.02
Acute Trusts	0.50	0.51	0.50	<i>0.53</i>	<i>0.49</i>	<i>0.38</i>	<i>0.52</i>	0.48	0.50
Ambulance	0.01	<i>0.03</i>	<i>0.009</i>	<i>0.003</i>	<i>0.01</i>	<i>0.04</i>	<i>0.008</i>	0.007	0.01
Combined Acute and Community	0.12	0.12	0.12	0.12	0.12	0.11	0.12	<i>0.08</i>	<i>0.13</i>
Combined Mental Health/Learning Disability	0.08	<i>0.07</i>	<i>0.09</i>	0.07	0.09	<i>0.11</i>	<i>0.08</i>	<i>0.16</i>	<i>0.07</i>
Community	0.10	<i>0.06</i>	<i>0.11</i>	0.09	0.10	0.08	0.10	<i>0.05</i>	<i>0.10</i>
Mental Health/Learning Disability	0.14	0.15	0.13	0.13	0.14	<i>0.20</i>	<i>0.13</i>	<i>0.18</i>	<i>0.13</i>
Observations	3497	745	2752	876	2621	435	3062	403	3094

Mean pair difference (Men Vs. Women, Nurses Vs. Non-nurses, LGB+ Vs. Heterosexual, Ethnic Vs. Non-Ethnic): bold and italic p<0.05, bold p<0.10.

Table A3. Probability of job satisfaction, full model, marginal effects

	(1) Total	(2) Nurses	(3) LGB+	(4) Women	(4) Ethnic
Demographics					
woman	0.0456*** (0.0141)	-0.0618 (0.0430)	0.0189 (0.0351)		0.0465 (0.0341)
LGB+	0.0252 (0.0196)	-0.0236 (0.0359)		0.0187 (0.0220)	0.201*** (0.0500)
disclose			0.0230 (0.0391)		
ethnic	0.00880 (0.0184)	-0.0441 (0.0383)	0.146*** (0.0495)	0.00519 (0.0225)	
age	-0.00121** (0.000562)	-0.00256 (0.00270)	-0.0050*** (0.0019)	-0.00138** (0.000652)	-0.00244 (0.00175)
dependent children	-0.00840 (0.0179)	-0.0204 (0.0273)	0.0739 (0.0496)	-0.00479 (0.0208)	0.0138 (0.0401)
living together	0.0254** (0.0112)	0.00314 (0.0237)	0.0021 (0.0435)	0.0225* (0.0120)	0.0263 (0.0321)
disability	0.0146 (0.0116)	0.0132 (0.0214)	0.0094 (0.0439)	0.0111 (0.0123)	0.0248 (0.0346)
Qualifications (omitted category: minimal)					
GCSE grades A-C ⁴	-0.0403 (0.0327)	-0.0102 (0.132)	-0.0746 (0.0961)	-0.0500 (0.0378)	-0.0165 (0.126)
Trade	0.0566 (0.0543)			0.0217 (0.100)	
A levels	-0.0104 (0.0283)	-0.00594 (0.176)	-0.0963 (0.0980)	-0.0174 (0.0300)	-0.0651 (0.100)
Diploma	0.00350 (0.0291)	-0.0206 (0.108)	-0.0635 (0.0929)	-0.0123 (0.0342)	-0.0936 (0.0849)
First degree	0.0375 (0.0346)	0.0124 (0.108)	-0.0748 (0.0882)	0.0351 (0.0378)	-0.00432 (0.0830)
Higher degree	0.0337 (0.0295)	0.0507 (0.109)	-0.112 (0.0928)	0.0309 (0.0320)	-0.0296 (0.0842)
Job characteristics					
own-wage	0.0581* (0.0314)	-0.106 (0.524)	0.0601 (0.0906)	0.0645* (0.0358)	0.0506 (0.0986)
relative-wage	-0.0244 (0.0355)	0.0983 (0.506)	-0.0309 (0.0946)	-0.0437 (0.0394)	0.0566 (0.0956)
part-time	0.00103 (0.0164)	-0.0216 (0.0367)	-0.0652 (0.0617)	0.000532 (0.0181)	-0.0462 (0.0441)
job permanent	-0.0383* (0.0199)	-0.0283 (0.0513)	0.0314 (0.0807)	-0.0448** (0.0209)	-0.148** (0.0690)
training	0.0778*** (0.0164)	0.0714*** (0.0268)	0.0730* (0.0400)	0.0763*** (0.0187)	0.0618* (0.0332)
promotions	0.0394** (0.0165)	0.0790*** (0.0249)	0.0666 (0.0406)	0.0407** (0.0168)	0.0461 (0.0292)
trade union	-0.000726 (0.0134)	-0.0520 (0.0457)	-0.00920 (0.0400)	-0.00914 (0.0151)	0.0260 (0.0336)

continued

Table A3. Probability of job satisfaction, full model, marginal effects

	(1) Total	(2) Nurses	(3) LGB+	(4) Women	(4) Ethnic
Job characteristics cont.					
pressure	0.00443 (0.0161)	-0.0298 (0.0270)	0.0476 (0.0373)	-0.00900 (0.0223)	0.0141 (0.0390)
overwhelmed	-0.0881*** (0.0134)	-0.0424 (0.0271)	-0.114*** (0.0418)	-0.0680*** (0.0140)	-0.101** (0.0493)
works less	-0.0223* (0.0123)	-0.00462 (0.0253)	-0.0892** (0.0368)	-0.0175 (0.0115)	0.00755 (0.0313)
work-life balance	0.0929*** (0.0120)	0.117*** (0.0242)	0.0751** (0.0351)	0.0970*** (0.0148)	0.110*** (0.0402)
Supportive workplace measures					
supportive colleagues	(0.0168) 0.0930***	(0.0264) 0.0980**	(0.0455) 0.122***	(0.0179) 0.0941***	(0.0499) -0.0185
cooperative workplace	(0.0145) 0.0561***	(0.0407) 0.0610*	(0.0463) 0.102**	(0.0145) 0.0452**	(0.0376) 0.0749
supervisor responsive	(0.0162) 0.0742***	(0.0352) 0.0859***	(0.0425) 0.101***	(0.0197) 0.0726***	(0.0509) 0.102***
mentor	(0.0125) 0.104***	(0.0245) 0.110***	(0.0321) 0.0985**	(0.0149) 0.0941***	(0.0325) 0.152**
part of the family	(0.0142) 0.150***	(0.0258) 0.115***	(0.0442) 0.0927**	(0.0160) 0.151***	(0.0597) 0.181***
influence	(0.0173) 0.0926***	(0.0310) 0.0816***	(0.0437) 0.0749*	(0.0167) 0.0959***	(0.0564) 0.0477
quality of care	(0.0200) -0.0202***	(0.0275) -0.0173	(0.0444) -0.0311*	(0.0220) -0.0224***	(0.0381) -0.0261
bullying index	(0.00666) 0.056***	(0.0126) 0.045**	(0.0187) 0.102**	(0.00779) 0.075	(0.0214) 0.014
measures to prevent bullying (omitted category: not effective)					
slightly effective	0.0317* (0.0172)	0.0559* (0.0335)	-0.0638 (0.0552)	0.0361* (0.0192)	0.0538 (0.0499)
moderately effective	0.0471*** (0.0158)	0.0735** (0.0363)	-0.0105 (0.0401)	0.0507*** (0.0193)	0.0541 (0.0458)
very or extremely effective	0.0758*** (0.0203)	0.135*** (0.0447)	0.109* (0.0597)	0.0849*** (0.0231)	0.122* (0.0626)
network exists	0.0646*** (0.0129)	0.0768*** (0.0215)	0.133*** (0.0442)	0.0620*** (0.0151)	-0.00771 (0.0408)
NHS England region (omitted category: London)					
North of England	0.0407* (0.0229)	0.0765** (0.0373)	0.0579 (0.0498)	0.0450* (0.0238)	0.125** (0.0613)
Midlands & East of England	0.0170 (0.0242)	0.0630* (0.0363)	-0.0099 (0.0472)	0.0303 (0.0258)	-0.0158 (0.0484)
South West	0.0511** (0.0227)	0.122*** (0.0432)	0.0985 (0.0639)	0.0576** (0.0238)	-0.00450 (0.0976)
South East	0.0325 (0.0265)	0.0421 (0.0332)	-0.0277 (0.0526)	0.0358 (0.0268)	-0.0408 (0.0463)

continued

Table A3. Probability of job satisfaction, full model, marginal effects

	(1) Total	(2) Nurses	(3) LGB+	(4) Women	(4) Ethnic
Trust type (omitted category: Acute)					
Acute Specialist ²	-0.0278 (0.0359)	-0.143*** (0.0431)	-0.164*** (0.0590)	-0.0196 (0.0303)	0.0433 (0.137)
Ambulance	0.0223 (0.0647)	-0.0080 (0.107)	-0.147* (0.0847)	-0.0192 (0.0929)	
Acute & Community	-0.00345 (0.0207)	0.00133 (0.0358)	-0.176*** (0.0542)	-0.00248 (0.0198)	-0.154*** (0.0541)
Comb. Mental Health/Learning Disability	-0.0174 (0.0216)	0.0315 (0.0381)	-0.172*** (0.0566)	-0.0213 (0.0234)	-0.0555 (0.0659)
Community	-0.0502*** (0.0192)	-0.0396 (0.0386)	-0.0852 (0.0538)	-0.0482** (0.0196)	0.0247 (0.0662)
Mental Health / Learning Disability	-0.0429** (0.0206)	-0.0346 (0.0298)	-0.0521 (0.0422)	-0.0344* (0.0202)	-0.0591 (0.0440)
Observations	3497	876	435	2752	403
Pseudo R-squared	0.4407	0.4492	0.4383	0.4412	0.4879

Standard errors in parentheses *p<0.10, **p<0.05, ***p<0.01

For the ethnic sample, category 'Acute Specialist Trusts' also includes category 'Ambulance Trusts'; For LGB+ and ethnic samples, category 'GCSE grades A-C' also includes category 'trade'.

Table A4. Probability of job satisfaction, full model, selected results, marginal effects

	(1) Total	(2) 2-way interactions (woman, LGB+, ethnic)	(3) 3-way interactions (woman*LGB+*ethnic)
Demographics			
woman	0.046***	0.047***	0.048***
LGB+	0.025	0.026	0.028
ethnic	0.009	0.012	0.013
age	-0.001**	-0.001**	-0.001**
dependent children	-0.008	-0.007	-0.007
living together	0.025**	0.025**	0.025**
disability	0.015	0.015	0.015
Job characteristics			
own-wage	0.058*	0.057*	0.057*
relative-wage	-0.024	-0.024	-0.024
job permanent	-0.038*	-0.039*	-0.039**
training	0.078***	0.077***	0.077***
promotion	0.039**	0.040**	0.040**
trade union	-0.0007	-0.0009	-0.0009
part-time	0.001	0.00006	-0.00005
works less	-0.022*	-0.021*	-0.021*
work-life balance	0.092***	0.092***	0.092***
pressure	0.004	0.005	0.004
overwhelmed	-0.088***	-0.088***	-0.088***
Supportive workplace measures			
supportive colleagues	0.041**	0.041**	0.041**
cooperative workplace	0.093***	0.092***	0.092***
supervisor responsive	0.056***	0.056***	0.056***
mentor	0.074***	0.073***	0.073***
part of the family	0.104***	0.103***	0.103***
influence	0.150***	0.151***	0.151***
quality of care	0.092***	0.093***	0.093***
network exists	0.064***	0.065***	0.065***
Measures to prevent bullying (omitted category: not effective)			
slightly effective	0.031*	0.030*	0.030*
moderately effective	0.047***	0.046***	0.046***
very or extremely	0.075***	0.074***	0.074***
bullying index	-0.0202***	-0.020***	-0.020***
Qualifications	√	√	√
Region	√	√	√
Trust type	√	√	√

continued

Table A4. Probability of job satisfaction, full model, selected results, marginal effects

	(1) Total	(2) 2-way interactions (woman, LGB+, ethnic)	(3) 3-way interactions (woman*LGB+*ethnic)
2-way interactions between woman, LGB+, ethnic included		√	√
3-way interaction (woman, LGB+, ethnic) included			√
Observations	3497	3497	3497
Pseudo R-squared	0.4407	0.4419	0.4420

Additional notes for Table A4.

Table A4 presents the combined marginal effects associated with the variables of interest. To further explore the interaction **Female and LGB+** in the model presented in column 2 of Table A4, the marginal effects can be evaluated at particular combinations of these variables (e.g., 0 and 1). This approach allows us to assess, ceteris paribus, the marginal effect of being LGB+ on the probability of job satisfaction separately for males and females, as shown in the following table:

	Marginal effect	Std. Error	P-value
Male	0.042	0.029	0.147
Female	0.022	0.021	0.303

We observe:

- Among men, identifying as LGB+ is associated with a 4.2 percentage point higher probability of job satisfaction compared to non-LGB+ men, but this difference is not statistically significant ($p = 0.15$).
- Among women, identifying as LGB+ is associated with a 2.2 percentage point higher probability of job satisfaction compared to non-LGB+ women, also not statistically significant ($p = 0.25$).

As both effects are small and not statistically significant, we cannot conclude that LGB+ status affects job satisfaction differently for men vs. women.

For the other interactions in column 2 of Table A4, the results obtained are:

a. Female*ethnic

	Marginal effect	Std. Error	P-value
Not ethnic minority	0.049	0.015	0.001
Ethnic minority	0.031	0.034	0.365

b. Ethnic*LGB+

	Marginal effect	Std. Error	P-value
Not ethnic minority	0.009	0.020	0.630
Ethnic minority	0.153	0.048	0.002

Considering the interactions in the model presented in column (3) of Table A4:

a. Female*LGB+

	Marginal effect	Std. Error	P-value
Not ethnic minority	0.041	0.029	0.152
Ethnic minority	0.024	0.021	0.251

b. Female*ethnic

	Marginal effect	Std. Error	P-value
Not ethnic minority	0.050	0.015	0.001
Ethnic minority	0.032	0.034	0.346

c. Ethnic*LGB+

	Marginal effect	Std. Error	P-value
Not ethnic minority	0.008	0.020	0.671
Ethnic minority	0.173	0.055	0.002

d. Similarly, with the triple interaction **Female*LGB+*ethnic**, there is no single “marginal effect” of the triple interaction. It depends on all three variables and where they are evaluated. For example:

- Average marginal effect of being LGB+ (compared to non-LGB+) on the predicted probability of job satisfaction, separately for each combination of sex (female = 0/1) and ethnic minority status (ethnic minority = 0/1).

	Marginal effect	Std. Error	P-value
Male, not ethnic minority	0.029	0.030	0.338
Male, ethnic minority	0.132	0.085	0.121
Female, not ethnic minority	0.003	0.023	0.893
Female, ethnic minority	0.185	0.069	0.008

- Average marginal effect of being female (vs. male) on the predicted probability of job satisfaction, separately for each combination of ethnic minority status (0/1), and LGB+ status (0/1).

	Marginal effect	Std. Error	P-value
Non-LGB+, not ethnic minority	0.053	0.016	0.001
Non-LGB+, ethnic minority	0.026	0.038	0.501
LGB+, not ethnic minority	0.027	0.034	0.421
LGB+, ethnic minority	0.078	0.104	0.452

- Average marginal effect of being Ethnic minority (vs. non-minority) on the predicted probability of job satisfaction, separately for each combination of gender (female = 0/1), and LGB+ status (LGB+ = 0/1).

	Marginal effect	Std. Error	P-value
Male, non-LGB+	0.016	0.037	0.662
Male, LGB+	0.119	0.081	0.142
Female, non-LGB+	-0.011	0.021	0.610
Female, LGB+	0.170	0.076	0.026

Table A5. Reporting coefficients of interactions, full model, not marginal effects

	(1)	(2)	(3)
	Total	2-way interactions (woman, LGB+, ethnic)	3-way interactions (woman*LGB+*ethnic)
Interactions			
Female*LGB+		-0.090	-0.121
(Robust Standard error)		(0.1494)	(0.1626)
[p-value]		[0.545]	[0.456]
Female*ethnic		-0.084	-0.127
(Robust Standard error)		(0.1827)	(0.2003)
[p-value]		[0.643]	[0.525]
Ethnic*LGB+		0.686**	0.488
(Robust Standard error)		(0.2554)	(.4368)
[p-value]		0.007	[0.263]
Female*LGB+*ethnic			0.394
(Robust Standard error)			(0.6255)
[p-value]			[0.528]