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## **HRM in Healthcare: The Role of Work Engagement**

### **Abstract**

**Purpose:** Due to increasing cost pressures, and the necessity to ensure high quality patient care while maintaining a safe environment for patients and staff, interest in the capacity for HRM practices to make a difference has piqued the attention of healthcare professionals. The purpose of this study is to present and test a model whereby engagement mediates the relationship between four HRM practices and quality of care and safety in two different occupational groups in healthcare, namely, nurses and administrative support workers.

**Design/methodology/approach:** Structural equation modelling was used to analyze questionnaire data collected by the National Health Service in the United Kingdom as part of their 2011 Staff Survey (n=69,018). We tested the hypotheses for nurses and administrative support workers separately.

**Findings:** Training, participation in decision-making, opportunities for development, and communication were positively related to quality of care and safety via work engagement. The strength of the relationships was conditional on whether an employee was a nurse or administrative support worker.

**Originality/value:** This is the first paper to examine the mediating role of engagement on the relationship between four relevant HRM practices in the healthcare context, and outcomes important to healthcare practitioners. We also add value to the HRM literature by being among the first to use the Job Demands Resources Model to explain the impact of HRM practices on performance outcomes. Moreover, we provide insight into how HRM practices affect outcomes in the world's largest publicly funded healthcare service.

**Keywords:** perceptions of HRM practices; engagement; safety; quality of care; healthcare

Research has established the critical importance of Human Resource Management (HRM) practices in the healthcare sector for promoting positive outcomes for patients, staff, and organizations (e.g. Ang *et al.*, 2013; Baluch *et al.*, 2013; Townsend *et al.*, 2013). Although this budding area of HRM research indicates the capability of HRM practices to make a difference, there remain a number of pressing unanswered questions. For instance, few studies have focused on the effect of HRM practices on outcomes that are tailored to the healthcare context, and still fewer have examined individual HRM practices, rather than bundles of HRM practices on such outcomes. Moreover, little is known about the psychological mechanism that explains the relationship between HRM practices and outcomes of strategic importance to healthcare organizations. This study was designed to address these gaps in the literature. Indeed, the purpose of the present study is to develop and test a model of the mediating role of engagement on the relationship between HRM practices and quality of care and safety (Veld *et al.*, 2010). In other words, our research question is: Does engagement mediate the relationship between HRM practices and outcomes of relevance to healthcare organizations?

Engagement is at the heart of our theoretical model; it is defined as an energetic and motivational work-related state (Bakker and Demerouti, 2008) and is positioned as a mediator of the relationship between perceptions of HRM practices and quality of care and safety. Our theoretical development draws on the Job Demands Resources (JD-R) model that stipulates that job resources ignite engagement, which then translates into beneficial outcomes (Bakker and Demerouti, 2007, 2008). In the present study, we make a theoretical link between the perceptions of HRM literature and the JD-R model by showing that HRM practices map onto the characteristics of job resources, and hence may lead to valued outcomes, via engagement. Figure 1 depicts our theoretical model.

Insert Figure 1 about here

We contribute to the literature in at least three ways. First, we contribute to the perceptions of HRM literature by leveraging the JD-R model to position engagement as the mediator of the relationship between perceptions of HRM practices and outcomes of relevance to organizations (Jiang *et al.*, 2013). This marks a departure from prior research on perceptions of HRM, which has mainly applied social exchange theory to explain why perceptions of HRM lead to desirable outcomes. However, social exchange theory has been criticized recently in this context, and HRM scholars have called for new theoretical underpinnings to explore the relationship between HRM practices and outcomes (e.g. Cropanzano and Mitchell, 2005; Kiewitz *et al.*, 2009; Wright and Niishi, 2007). We address this call by focusing on engagement as a mediator and suggest that HRM practices are likely to ignite a motivational process.

The second contribution is that we examine four HRM practices individually – training, participation in decision-making, opportunities for development, and communication – rather than combining them into a single measure. There are significant theoretical and practical implications of doing so because the results provide information on the extent to which each HRM practice influences important outcomes (Boselie *et al.*, 2005; Shantz *et al.*, 2012; Wall and Wood, 2005). Moreover, we respond to a call by Paauwe and Boselie (2005) to identify and test HRM practices that are tailored to a sector's unique context. In doing so, we show how the HRM practices that are under consideration in the present study are particularly relevant to the healthcare context.

The third contribution lies in testing our proposed model in two of the largest occupational groups employed by healthcare organizations: nurses and administrative support staff. This is important because, as Lepak and Snell (1999, p. 32) argued, there is likely not, “a single optimal HR architecture for managing all employees.” It is therefore important for research to investigate which HRM practices are specifically pertinent for each of these

employee groups because they may differ. We chose to investigate nurses because they are one of the most important occupational groups in healthcare (CIPD, 2013; West and Dawson, 2012). Administrative staff were chosen as the second occupational group because research indicates that, compared to other occupational groups, they are the most neglected in the healthcare setting and tend to report lower levels of engagement (e.g. Harkness *et al.*, 2005; West and Dawson, 2012). Hence, we contribute to the literature by examining the impact of HRM practices on two crucial occupational groups in healthcare.

We situate our theoretical model and test our hypotheses in the context of the National Health Service (NHS), the world's largest publicly funded health service and the largest employer in the United Kingdom (UK). It currently employs over 1.3 million employees, over half of whom are professionally qualified clinical certified staff. The NHS pays for the majority of healthcare expenses, and in most cases, owns and manages hospitals and clinics (The Health and Social Care Information Centre, 2014). In order to increase two of the most important outcomes for the NHS – quality of care and safety – (Care Quality Commission, 2010; Department of Health, 2010; Health and Social Care Act, 2012), its leadership has identified staff engagement as a key priority. Indeed, the Department of Health initiated a Staff Engagement Policy Group in 2008; the Francis Report (2013) concluded that the NHS needs to foster an environment in which all staff are fully engaged; and the NHS recently developed a staff engagement indicator within its annual staff survey, which is used in this study. The present study, therefore, may inform practice by identifying factors that have the potential to raise engagement, which may aid in the achievement of important strategic goals for healthcare organizations.

This paper is organized as followed. First, we discuss how both nurses and administrative support workers have the potential to positively influence quality of care and safety. Next, we introduce the specific HRM practices under consideration in this study, and

show how they are particularly relevant in the context of a healthcare organization. Following this, we leverage the JD-R model to show that each HRM practice can be conceived of as job resource, and then provide theoretical justification for our hypotheses that each HRM practice is positively related to engagement, and engagement mediates the relationship between each HRM practice, and quality of care and safety. Next, we turn to an explication of our method, the results of our data analyses, and finally conclude with a discussion of the findings, limitations, and practical implications for healthcare organizations.

### **Theoretical Background and Hypotheses**

#### **Healthcare priorities of quality of care and safety**

Healthcare policy has increasingly emphasized the importance of quality of care and patient safety (e.g. World Health Organization, 2001; Care Quality Commission, 2010; Department of Health, 2010; Health and Social Care Act, 2012). Quality of care refers to employees' perceptions of the quality of the technical and interpersonal care provided to patients (Donabedian, 1988). Both nurses and administrative support staff play important roles in ensuring that patients receive quality care. Nurses' contributions are relatively more overt as they provide direct patient care, for example, by administering medication, providing treatment, and comforting ill patients. Administrative support staff, on the other hand, are the first point of contact for patients and provide face-to-face customer service by ensuring that patients move seamlessly from one department to the next and receive timely appointments. In fact, administrative support staff are particularly well placed to see gaps in service delivery as they receive first-hand information about why patients miss appointments and why delays may occur in waiting rooms. Hence, both nurses and administrative support staff are important employee groups in ensuring a high quality service.

A second priority for healthcare, safety, refers to the "avoidance, prevention, and amelioration of adverse outcomes or injuries" and includes errors, deviations, and accidents

(Gabba and Review, 2000, p. 85). Gabba and Review (2000) stated that safety concerns arise from the complexity involved in the direct provision of healthcare to patients (i.e. nurses in the operating room), and also due to the complexity of the organizational structure that channels patients through multiple departments (i.e. administrative staff at the emergency room welcome desk). Nurses are crucial in safeguarding patients, particularly as they prognosticate disease, manage the administration of medication, and check patients' vital signs. Administrative support staff are also essential in ensuring a safe patient journey; for example, it is their responsibility to keep accurate patient records, store sensitive patient data securely, and match patients who arrive for appointments to their correct medical records. Mistakes in these processes could lead to severe safety consequences, including wrong-side surgery or the leakage of confidential data.

### **Perceptions of HRM practices in healthcare**

HRM practices are formal and informal people-management practices that are designed and implemented to ensure that an organization's human capital contributes to the achievement of its objectives (Delery and Doty, 1996). In conceptualizing HRM to assess its relevance, researchers have used either intended (as described by managers), or employees' perceptions of HRM practices. We chose to measure perceptions because for HRM practices to affect employee attitudes, they need to be recognized and interpreted by employees (e.g. Boxall and Purcell, 2008). In the present study, we examine employees' evaluations of HRM practices (i.e. is training effective?) rather than a description of HRM practices (i.e. do training opportunities exist?; Wright and Boswell, 2002). This is because, as Wall and Wood (2005) argued, inadequate implementation of HRM practices may do more damage than no implementation at all, and hence perceived effectiveness of HRM practices constitute a better measure of HRM practices compared to a measure of perceived availability of HRM practices.

A second issue is whether to examine bundles or individual HRM practices (Wright and Boswell, 2002). We chose to examine the latter because prior research has established that HRM bundles are positively related to quality of care and safety (e.g. Bonias *et al.*, 2010; Townsend *et al.*, 2013; Veld *et al.*, 2010; West *et al.*, 2006). It is therefore time to turn to an examination of contextually relevant individual HRM practices to determine their relative impact on outcomes. Doing so is important theoretically as it “adds to the construct validity of the investigation” (Wall and Wood, 2005, p. 453). Moreover, examining individual practices, rather than bundles, has practical significance because it provides practitioners with specific guidance on which HRM practices are particularly influential in raising levels of engagement.

Training is relevant in a healthcare context because it is necessary to keep the workforce up to date on medical advancements and new technologies (e.g. Eaton, 2000). Further, primary carers in the UK have taken on many of the responsibilities of secondary carers, and all employees are asked to balance efficiency with patient empowerment, both of which require different skills (Fletcher, 2007). Consequently, organizations must provide employees with the requisite knowledge and skills to carry out enlarged jobs. A second relevant HRM practice is opportunities for development. The NHS has been under pressure to demonstrate that a career in healthcare in the UK is a worthwhile option. To achieve this aim, it recently modernized its career management practices (Hyde *et al.*, 2005). A third HRM practice - participation in decision-making - is also important for increasing quality of care and safety (e.g. Rondeau and Wagar 2001) because of the ever-changing nature of the sector (Holland *et al.*, 2013). In order to withstand the pressure to become more cost efficient, the NHS has decentralized many of its operations, thereby flattening hierarchies. According to West *et al.* (2011), the success of such organizational re-design in healthcare is dependent on whether employees have an opportunity to participate in decision-making. Finally, we



examine communication because communication breakdowns among staff threaten patient safety (e.g. Halverson *et al.*, 2011; Veld *et al.*, 2010); critical information may be over-looked or not shared resulting in dire consequences. Conversely, open communication channels encouraging knowledge sharing and error reporting (e.g. Makary *et al.*, 2007; Veld *et al.*, 2010).

### **Work engagement and the Job-Demands-Resources (JD-R) Model**

Schaufeli and Bakker (2004) stated that engagement is a “positive, fulfilling, and work-related state of mind that is characterized by vigor, dedication and absorption” (p. 295) and is central to the JD-R model (Bakker and Demerouti, 2008). The motivational process outlined in the JD-R model suggests that job resources lead to engagement because job resources (1) assist employees in achieving work goals, (2) reduce the costs associated with demands faced on the job, and/or (3) stimulate personal development. Such resources are invigorating for employees, leading them to become engaged with their work, which translates into positive outcomes.

There are a number of studies carried out in healthcare that support the motivational process posited by the JD-R model. For instance, research has shown a direct relationship between job resources (e.g. Hakanen *et al.*, 2006; Mauno *et al.*, 2007), including bundles of HRM practices (Bal *et al.*, 2013) and engagement; and between engagement and job satisfaction (Giallonardo *et al.*, 2010; Laschinger *et al.*, 2009), organizational citizenship behaviors (Salanova *et al.*, 2011), intent to remain, organizational commitment (Ang *et al.*, 2013), and life satisfaction (Hakanen and Schaufeli, 2012). Hakanen *et al.* (2008) carried out the only empirical study that directly examined the *mediating* role of engagement in healthcare.

We build on this work in a number of ways. For instance, Hakanen *et al.* (2008) combined a number of job resources (task variety, social support at work, and feedback) into

a single measure. There are implications for examining them individually, because the results provide information on how individual job resources can be altered to generate engagement (Shantz *et al.*, 2012; Wall and Wood, 2005). Additionally, Hakanen *et al.* (2008) examined organizational commitment as an outcome variable, whereas in the present study we examine two of the most important outcomes in healthcare. Moreover, in what follows, we show that the four HRM practices that we chose to examine in the present study have many of the same properties as job resources as outlined in the JD-R model. This provides a theoretical link between the JD-R model and the perceptions of HRM literature.

As noted previously, job resources assist employees in (1) reaching work goals, (2) reducing the costs associated with job demands, and/or (3) facilitating personal development. The HRM practice, training, is a job resource because it stimulates personal development (Bartlett, 2001) and helps employees to achieve work goals by providing employees with the skills necessary to carry out their work (see Aguinis and Kraiger, 2009 for a review). As a consequence of training, employees may feel inspired by their work and competent in carrying it out and therefore they may become more engaged with it. Research in support of this shows that the availability of organizational resources such as training leads to engagement, with resulting higher levels of organizational effectiveness (Salanova *et al.*, 2005). Moreover, training may improve safety and quality of care because it helps to reduce human error (Helmreich, 2004), as healthcare professionals become more knowledgeable and are therefore better able to carry out their work. Consistent with the JD-R model that posits that engagement mediates the relationship between a job resource (training) and positive outcomes (quality of care and safety) we hypothesize:

*Hypothesis 1: (a) Training is positively related to work engagement. Work engagement mediates the relationship between training and (b) quality of care and (c) safety.*

Having opportunities for development is a job resource primarily because it facilitates the personal development of employees. Research has shown that development opportunities build morale and encourage personal and skill development (e.g. Aguinis and Kraiger, 2009; Sturges *et al.*, 2005). In a healthcare context, Cho *et al.* (2006) found that new nurses who were provided with development opportunities had lower levels of emotional exhaustion, which translated in higher levels of commitment toward the hospital. If employees feel that they have opportunities for development, then they are more likely to put energy into their work, leading to positive outcomes, including higher quality of care and safety. Consistent with our argument that opportunities for development is a job resource, and the JD-R model, which stipulates that engagement mediates the relationship between job resources and valued outcomes, we hypothesize:

*Hypothesis 2: (a) Development opportunities are positively related to work engagement. Work engagement mediates the relationship between development opportunities and (b) quality of care and (c) safety.*

Participation in decision-making is a job resource because it helps employees to achieve work goals (e.g. Lam *et al.*, 2002), which prompts a feeling of mastery over one's work, triggering engagement. Moreover, participation in decision making may alleviate job demands faced by healthcare employees, as they have an opportunity to voice concerns and make suggestions to the arrangement of work so that they are best able to carry it out (Beh and Loo, 2012; Holland *et al.*, 2013). Having these opportunities is therefore likely to be positively associated with engagement. For example, Mikkelsen *et al.* (2000) found that a participatory intervention reduced the demands associated with healthcare employees' jobs. Hence, participation in decision making, as a job resource, may lead to engagement and more positive healthcare outcomes:

*Hypothesis 3: (a) Participation in decision-making is positively related to work engagement. Work engagement mediates the relationship between participation in decision-making and (b) quality of care and (c) safety.*

Effective communication assists employees in achieving their work goals because it allows organizations to disseminate their strategic goals (Veld *et al.*, 2010). It is through this process that employees understand how their role contributes to the organization's strategic imperatives. By feeling "in on things" at work, and understanding how their role contributes to the organization's main objectives, employees may be more likely to become immersed in, and engaged with their work. Communication is also a job resource because it reduces the effect of job demands. Beh and Loo (2012) and Appelbaum and Gandell (2003) concluded that healthcare workers become disillusioned and stressed from their work when they are not provided with sufficient and timely communication. This sense of disengagement is then likely to result in lower levels of quality and safety. Hence:

*Hypothesis 4: (a) Communication is positively related to work engagement. Work engagement mediates the relationship between communication and (b) quality of care and (c) safety.*

### **The HRM architecture in healthcare**

Most research in healthcare considers hospital employees to be a homogenous group or it focuses on a specific occupation, such as nursing. We take a different approach by examining our model across two key occupational groups, namely, nurses and administrative support staff. This is in alignment with Lepak and Snell's (1999) argument that organizations vary their use of HRM practices for different employee groups to reflect differences in human capital. They identified two determining factors that dictate a firm's choice in the provision of HRM practices, namely, strategic value and uniqueness of human capital. The strategic value of human capital refers to its potential to improve the effectiveness of the organization,

whereas the uniqueness of human capital refers to the degree to which it is rare, in that it is not easily duplicated by other organizations. From these two dimensions, Lepak and Snell (1999) identified four configurations that have implications for an organization's choice of HRM practices, namely, knowledge-based, job-based, contractual work, and alliances. Nurses are likely to fall within the knowledge-based category, as their skills are both unique and central to the operation of hospitals. Office workers, on the other hand, are likely to fall in the category of job-based employment; although their work is integral to the strategic focus of the organization, their skills are relatively less unique. Hence, it is likely that HRM practices are different for these two groups, and therefore their perceptions are likewise likely to vary.

Although our occupational analyses are largely exploratory, there is reason to expect some differences in relation to our conceptual model. First, we expect that the relationship between engagement and quality of care and safety is stronger for nurses, relative to administrative support staff. This is because nurses have a closer relationship with those who benefit from their work. Grant's (2007) theory of prosocial motivation suggests that employees become intrinsically motivated by their work when they see the impact that their work has on others; the more physically and psychologically close employees are to those who benefit from their work, the more motivated they become. Since nurses are in day-to-day contact with patients, they may be more intrinsically motivated, leading to a stronger relationship between engagement and quality of care and safety.

*Hypothesis 5: Nurses' work engagement is more strongly related to (a) quality of care and (b) safety, compared to administrative support staff.*

We also expect that the relationship between participation in decision-making and communication with engagement is stronger for nurses, compared to the relationships between the other two HRM practices and engagement. According to Lepak and Snell

(1999), organizations provide their knowledge-based workers (i.e. nurses) with empowerment practices, such as participation in decision-making. Participation in decision-making is particularly important for nurses because they work in multi-disciplinary teams (Harris *et al.*, 2007). A single patient's journey involves doctors, nurses, and allied health professionals who must all work together to accomplish the same outcome. Hence, nurses may find participation in decision-making and communication to be especially relevant in generating engagement.

*Hypothesis 6: Participation in decision-making and communication are more strongly related to work engagement of nurses, compared to training and development opportunities.*

We also expect that training and development opportunities are relatively more important to administrative support staff, compared to the other two HRM practices. This is because administrative support staff are not necessarily tied to a career in healthcare (job-based employment; Lepak and Snell, 1999), as their administrative skills are transferable to other industries, including the private sector, where jobholders likely have higher compensation. Hence, administrative support staff may find that training and development opportunities are more engaging, as they tend to hold promise of employability.

*Hypothesis 7: Training and development opportunities are more strongly related to work engagement of administrative support staff, compared to participation in decision-making and communication.*

In summary, we hypothesize that each HRM practice is positively related to engagement, and engagement mediates the relationship between each HRM practice, and quality of care and safety. We also hypothesize that the strengths of some of these relationships vary depending on whether the respondent is a nurse or administrative support worker.

## **Method**

### **Sample and procedure**

The data was sourced from the 2011 NHS National Staff Survey. The survey covers all providers of NHS services and primary care trusts. Random sampling was used in each trust. Hardcopy questionnaires were distributed to staff in October 2011. Employees returned the anonymous questionnaire directly to the survey contractor, who managed the survey on behalf of the NHS. The final sample included 42,357 nurses and 26,661 administrative support workers.

### **Measures**

Although the NHS data provides us with a large dataset that is representative of the UK healthcare sector, the NHS developed the survey; we did not have input into its development. Notwithstanding, the scales we used from the NHS survey are shortened versions of very similar scales found in the academic literature. For instance, the measure of training and opportunities for development that are included in the NHS survey are conceptually similar to measures used by Boon *et al.* (2011); the measure of participation in decision-making substantially overlaps with the scale used by Prieto and Pilar Pérez Santana (2012); and the measure of communication is similar to the items used by Kernan and Hanges (2002) and Conway and Monks (2008). The three items used to measure engagement map tightly onto the three dimensions of engagement as measured by the Utrecht Work Engagement Scale (UWES-9; Schaufeli *et al.*, 2006), and the measure of quality of care substantially overlaps with a measure used by Grant (2008). The measure of safety relates to whether respondents reported errors or near misses. This is an important component of safety in hospitals because errors and near misses are likely to jeopardize the safety of patients, staff, and the community. This measurement approach is complementary to the successes reported by applying the Joint Commission International Accreditation Standards for

Hospitals measures (e.g. Cuilian *et al.*, 2009). We carried out additional tests to ensure that the measures are reliable and valid as described in the section below.

The items for each scale are found in Appendix 1. All items for all scales were scored on a 1 (strongly disagree) to 5 (strongly agree) scale, unless otherwise noted in the Appendix. The Cronbach alpha reliability statistics are found in Table 1 on the diagonal. Aside from the measure for safety (.63), all other scales exceeded the recommended threshold of .70 (Hair *et al.*, 2009). However, this value is acceptable, considering that we use a two-item measure (Hair *et al.*, 2009). We can therefore conclude that the scales used in the NHS survey are reliable.

## Results

### Descriptive Statistics

Table 1 presents the means and standard deviations for each scale, and inter-scale correlations for all study variables.

Insert Table 1 about here

### Preliminary Data Analysis

Confirmatory factor analyses (CFA) were carried out to assess the influence of common method variance (CMV) and to assess whether the measures used in the present study are distinct (Podsakoff *et al.*, 2003). We initially tested a full measurement model, in which all items loaded on their respective factors. The factors were allowed to correlate. We used five fit indices to establish the goodness of fit of our model: For the  $X^2/df$ , values of less than 2.5 indicate a good model fit and values around 5.0 indicate an acceptable fit (Arbuckle, 2006). For the normed fit index (NFI) and the comparative fit index (CFI), values greater than .95 represent a good model fit and values greater than .90 an acceptable fit (Bentler, 1990). For the Root Mean Square Error of Approximation (RMSEA) and the Standardized



Root Mean Square Residual (SRMR), values less than .08 indicate a good model fit (Browne and Cudeck, 1993; Hu and Bentler, 1998).

Insert Table 2 about here

The seven-factor model showed a very good model fit ( $X^2 = 18490$ ;  $df = 168$ ;  $NFI = .96$ ;  $CFI = .96$ ;  $RMSEA = .051$ ;  $SRMR = .065$ ), apart from the  $X^2/df$  value. However, as the  $X^2/df$  value is very sensitive to large sample sizes (Hair *et al.*, 2009), this value is acceptable considering the sample size used in this study (69,018 employees).

Next, sequential  $X^2$  difference tests were carried out. Specifically, the full measurement model was compared to five alternative nested models as shown in Table 2. The results revealed that the model fits of the alternative models were significantly worse compared to the full measurement model (all at  $p < .001$ ). Finally, we introduced an unmeasured latent methods factor to the original measurement model allowing all items to load on their theoretical constructs and on the latent methods factor. The change in CFI and RMSEA values between both models served as an indicator of significance. The changes of CFI and RMSEA values were 0.025 and 0.016, which do not exceed the suggested threshold of 0.05 (Bagozzi and Yi, 1990). Hence, the constructs in our study are distinct and CMV does not wholly explain the associations found in the data.

We also carried out tests to assess the validity of the scales. To assess evidence for convergent validity, we computed estimates of construct reliability and average variance extracted (AVE). Construct reliabilities from the CFA results ranged from .62 to .93 and therefore either approached or exceeded the recommended threshold of .70 suggested by Hair *et al.* (2009). The average variance extracted values ranged between .48 and .79 and therefore also approached or exceeded the recommended threshold of .50 (Hair *et al.*, 2009). Moreover, we found evidence for the discriminant validity of the study constructs using the method described by Fornell and Larcker (1981), as each construct's AVE value exceeded the

squared correlation between it and each of the other study constructs. In summary, the confirmatory factor analysis supports the structure and validity of the scales from the NHS survey.

### **Test of Hypotheses**

We employed latent variable structural equation modeling using AMOS 19.0 (Arbuckle, 2006) to test our hypotheses for each occupation, following the steps outlined by Mathieu and Taylor (2006). The procedure compares three alternative models: saturated, direct effects, and indirect effects. For the saturated model, paths were estimated from each HRM practice to engagement, quality of care and safety, and a direct path from engagement to both outcome variables. For the direct effects model, direct paths were estimated from each independent variable to the outcome variables, whereas no path led to or stemmed from engagement. The indirect effects model estimated direct paths from each HRM practice to engagement and a direct path from engagement to both outcome variables. The direct effects model and the indirect effects model were both nested within the saturated model, which enabled us to use a  $X^2$  difference test to compare the statistical fit of the three models. Hence, the difference in  $X^2$  between the direct effects model and the saturated model, as well as between the indirect effects model and the saturated model, were tested for significance while accounting for the change in degrees of freedom between the models.

### **Nurses**

Table 3 shows that the saturated model provided a good fit to the data. The direct effects model showed an acceptable model fit, but differed significantly from the saturated model [ $\Delta X^2(6) = 15626, p < .001$ ]. Hence, at least one HRM practice had a significant direct relationship with engagement, or engagement was significantly related to at least one outcome variable. The indirect effects model showed an acceptable model fit and, again, differed significantly from the saturated model [ $\Delta X^2(8) = 2379, p < .001$ ]. The lower fit

indicated that one or more of the HRM practices had a direct relationship with the outcome variables.

Insert Table 3 about here

In a next step, we used the indirect effects model as a base and subsequently added direct paths between the HRM practices and the outcome variables. We kept paths in the model if they had sufficient explanatory power, and if adding them resulted in a significant improvement to the overall model fit. The fit statistics for the final model are presented in Table 3.

Our analyses revealed that each HRM practice was positively related to engagement. Engagement was positively and significantly related to quality of care and safety. The bootstrapped indirect effects of the HRM practices on quality of care and safety through engagement were all significant at the  $p < .01$  level.

Additionally, participation in decision-making and communication were positively related to quality of care. Moreover, communication was significantly and positively related to safety. Hence, the relationship between training and opportunities for development on quality of care and safety, and the relationship between participation in decision-making on safety, were fully mediated by engagement. The relationships between participation in decision-making and quality of care, and between communication, quality of care and safety were partially mediated by engagement. The standardized estimates of the final model are represented in Figure 2.

Insert Figure 2 about here

### **Administrative support staff**

The direct [ $\Delta X^2(6) = 9069, p < .001$ ] and indirect effects [ $\Delta X^2(8) = 960, p < .001$ ] models were significantly weaker than the saturated model. For the final model, we used the indirect effects model as a base and subsequently added direct paths between the HRM

practices and the outcome variables. The fit statistics for the final model are presented in Table 4.

Insert Table 4 about here

All four HRM practices were positively related to engagement. Engagement, in turn, was significantly related to quality of care and safety. Bootstrapping revealed that the indirect effects of all HRM practices on quality of care and safety through engagement were significant ( $p < .01$ ). Additionally, communication was significantly and positively related to quality of care. However, when the direct path was added, the relationship between engagement and quality of care became non-significant. Hence, engagement mediated the relationship between the four HRM practices and safety (but not quality of care) for administrative support staff. The standardized estimates of the final model are represented in Figure 3.

Insert Figure 3 about here

### **Comparison between Occupational Groups**

The effect of engagement on quality of care and safety was considerably stronger in the nurse compared to the administrative support staff sample. Participation in decision-making and communication had the strongest effect on engagement in the nurse sample. For administrative support staff, participation in decision-making and opportunities for development had the strongest effect on engagement.

### **Discussion**

We contribute to the nascent body of research that demonstrates a positive relationship between perceptions of HRM practices and quality of care and safety in the healthcare sector (e.g. Veld *et al.*, 2010; West *et al.*, 2002, 2006). By positioning engagement as a mediator of these relationships, we provide new insights into the HRM-performance chain. In particular, we applied the JD-R model to understand the manner in which HRM

practices lead to outcomes in healthcare. Specifically, we argued that HRM practices are job resources that lead to higher healthcare performance indicators via engagement.

Most research that has examined the process by which perceptions of HRM practices lead to valued outcomes leverage social exchange theory (e.g. Alfes *et al.*, 2013a). This approach implies that perceptions of HRM practices lead to a process of reciprocation on the part of employees. In the present study, we contribute to the perceptions of HRM literature by providing an alternative lens to explain that perceptions of HRM practices produce an affective motivational state (engagement) in employees that leads to positive outcomes. Future research on perceptions of HRM practices should consider the application of the JD-R model to more fully understand the processes by which HRM practices lead to performance.

A second contribution of the present study is that we examined HRM practices individually, rather than combining them into a single measure. Studies on perceptions of HRM and job resources tend to bundle the individual practices/resources together. A major limitation to this approach is that it is impossible to discern the magnitude of each practice/resource on outcomes (e.g. Shantz *et al.*, 2012; Wall and Wood, 2005). Our study contributes to the practice of healthcare management by identifying specific HRM practices that have the potential to make a difference to quality of care and safety.

We also contribute to the literature on HRM architecture. This literature has largely been conducted at the firm level and tends to be descriptive in nature (e.g. Lepak and Snell 1999, 2002). Although there is some evidence that examining HRM configurations is important in understanding variability in firm performance (McClellan and Collins, 2011), this area of research has not fully explored the relationships between perceptions of HRM practices and employee attitudes and behaviors for different groups of employees. Our findings showed that engagement was more strongly related to quality of care and safety for nurses versus administrative support staff. This suggests that although administrative support

staff's enthusiasm and effort is important, it is the engagement of nurses that has a stronger influence on these healthcare outcomes.

Our study also helps to advance the JD-R model. Indeed, Whetten (1989) argued that an important step in theory development is the determination of the generalizability of a theoretical model. We provide support for the generalizability of the JD-R model in two ways. First, there are only a handful of studies that examine the model in the context of healthcare. Second, we examine the model across two occupational groups. That major tenants of the JD-R model were largely supported by the NHS data lends strength to the argument that HRM scholars should look to apply this model in future research on the relationship between perceptions of HRM and important outcomes.

The results of the present study can inform future research in a number of ways. For instance, our findings revealed that overall, participation in decision-making had the strongest, and training had the weakest relationship with engagement. This implies that HRM practices directed towards involvement are more important than those directed toward enhancing skills in healthcare. The extent to which this finding holds across sectors has yet to be explored. Hence, future research on perceptions of HRM should examine which HRM practices are most effective for raising engagement levels of employees who work in different sectors.

We also found that different HRM practices had varying strengths of relationships with engagement. This is important because the design of HRM practices differ across the two occupational groups. The NHS Staff Survey provides some insight into how the content of training, for instance, differs between nurses and administrative support workers. Specifically, employees were asked in a yes/no format whether they had taken part in a number of different training programs. In this post-hoc exploratory set of analyses, we found that the likelihood of participating in office-based training programs (e.g. training in

computer skills, the management of confidential information etc.) was greater for administrative support workers, and training programs that focused on medical knowledge and/or patients (e.g. training in infection control, mental health assessment, etc.) were more likely to be taken by nurses. This gives a first impression that the form of HRM practices varies by occupation. We recommend that future research examine the form of HRM practices to assess their relative impact on employee attitudes and important healthcare outcomes.

An additional noteworthy finding that may spur future research is that nurses had significantly higher levels of engagement compared to administrative support staff. Although this is consistent with prior research (Ang *et al.*, 2013; Mauno *et al.*, 2007), no research to our knowledge, has examined why this is the case. It is plausible that nurses are more engaged at work because they belong to a “profession.” Goode (1957) characterized professional communities as having homogeneity of training, a rite of passage, and a clear common moral code. In contrast, administrative support staff are viewed as part of the wider healthcare team, which houses a number of different occupational groups (NHS Careers, 2006). Future research should examine the relationship between occupational identification and engagement, and whether professional identity mediates this relationship.

### **Limitations**

The NHS staff survey data is cross-sectional. While the study hypotheses are based on a strong theoretical foundation, it should be noted that we cannot lay claim to causality. For instance, it is possible that safety and the provision of quality care lead to engagement. However, we tested alternative models in which HRM practices lead to quality of care and safety, which in turn were related to engagement. The results of these alternative models showed a worse model fit, which lends further support that engagement influences safety and quality of care, rather than the reverse. Nevertheless we encourage future research to test our

model using longitudinal data. Second, all the variables were derived from self-report measures, raising concerns regarding common method variance. However, our statistical analyses revealed that common method variance did not wholly explain the associations found in the data, and the variables in the analyses were distinct from one another.

Another concern relates to the self-report measures of our outcome variables. However, there is reason to believe that the self-report measures are good indicators of actual quality of care and safety. For instance, studies show that perceptions of safety and quality of care predict objective safety outcomes such as accidents and injuries, and objective quality of care outcomes, including length of patient stay, respectively (e.g. Beus *et al.*, 2010; Christian *et al.*, 2009; Shortell *et al.*, 1994). Nonetheless, we encourage future research to collect objective ratings of quality and safety.

A final limitation is that the data was drawn from the NHS in the UK. Although the results may be generalizable to other public-sector healthcare contexts, they may not generalize to privatized healthcare contexts. On the other hand, examining the NHS data may be considered a strength of our study. This is because we limit, at least to some degree, the extent to which organizational factors (i.e. organizational vision) may impact upon the hypothesized relationships.

### **Practical Implications**

There is growing awareness that HRM practices can produce positive outcomes for healthcare organizations. Like most public and private healthcare organizations, the NHS operates in a challenging environment because it is tasked with balancing quality with efficiency (Burns, 2012; McBride and Mustchin, 2013; Townsend and Wilkenson, 2010). Hence, it is imperative for organizational decision makers and HRM practitioners to know where to focus their efforts. Our findings show that focusing on relational HRM practices, such as increasing employee participation in decision-making and opportunities for



development are particularly useful in the healthcare context as they increase engagement. As expected, as healthcare workers reported engagement in their roles, quality of care and safety perceptions increased.

In a time of limited resources and significant financial budget cuts, our study assists HRM practitioners by recommending specific HRM practices for different occupational groups in order to target their unique needs and maximize their efforts. First, opportunities for development appeared to be particularly influential in increasing engagement among administrative support staff but less so for nurses. Organizational decision makers and HRM practitioners should ensure that administrative support staff have clear career ladders and are provided with support and guidance in developing their skills. Such opportunities are particularly salient for administrative support staff in the NHS as their ‘career ceiling’ is reached at band 5 while nurses can progress to band 8.

Second, communication was found to be relatively more important for nurses compared to administrative support staff. Indeed, communication among healthcare professionals is vital as communication breakdowns can lead to inefficiencies in service delivery and loss of important information that can threaten quality and patient safety (Halverson *et al.*, 2011). Hence, the unit’s strategy should be clearly communicated to employees (especially nurses) and the teams in which nurses operate should have clear lines of communication. Our findings are consistent with research that shows that nurses value communication and want to “speak up” and “be heard” (Garon, 2012).

Finally, HRM practitioners should focus on raising levels of engagement. This is particularly important in the NHS as only 32% of healthcare employees are actively engaged, compared to 37% in the general population (CIPD, 2013). In response, one of the priorities of the NHS has been to raise levels of engagement within the workforce, as indicated in the Francis Report (2013). The NHS should continue to put conditions in place to foster

engagement to further influence quality of care and safety. One way to do so is through the regular administration of an engagement survey (Truss *et al.*, 2013). The results should be analyzed across different occupational groups so that HRM practices can target the unique needs of each group because, as our research shows, different HRM practices are more pertinent for administrative support staff versus nurses.

### **Conclusion**

The pressures on public healthcare organizations have increased dramatically in the recent past. Healthcare organizations are tasked with balancing quality care with efficiency, while ensuring that patients and staff operate in a safe environment. One way to meet these ends is to retain an engaged workforce. The present study goes some way in helping healthcare organizations understand the HRM practices that lead to engagement for both nurses and administrative support workers, and provides evidence that activities that are designed to increase engagement are likely to pay off in the form of higher quality of care and safety. Importantly, the strength of the relationships between HRM practices and outcomes, via engagement, differed depending on whether an employee was a nurse or an administrative support worker. It may therefore behoove healthcare organizations to take a tailored approach to HRM for different occupational groups.

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**TABLE 1**  
**Means, Standard Deviations, and Correlations of the Study Variables**

	Mean (total/administrative/nurses)	SD (total/administrative/nurses)	1	2	3	4	5	6	7
1. Training	3.69/3.45/3.84	.85/.83/.84	(.92)						
2. Opportunities for Development	3.21/3.02/3.33	.86/.87/.83	.41**	(.82)					
3. Participation in Decision-Making	3.58/3.61/3.57	.80/.82/.78	.28**	.55**	(.86)				
4. Communication	3.04/3.06/3.03	.81/.79/.81	.28**	.49**	.46**	(.72)			
5. Work Engagement	3.82/3.74/3.87	.80/.84/.76	.28**	.45**	.45**	.39**	(.80)		
6. Quality of Care	4.62/5.55/4.03	1.46/1.62/.97	-.01	.10*	.25**	.22**	.15**	(.78)	
7. Safety	.42/.16/.58	.69/.46/.76	-.04**	.02**	.06**	.11**	.05**	.24**	(.63)

Notes: n = 69,018. \*\* p < .01. Cronbach reliability statistics for each scale are presented on the diagonal.

**TABLE 2**  
**Fit Statistics from Measurement Model Comparison**

Models	$X^2(df)$	NFI	CFI	RMSEA	SRMR	$X^2_{diff}$	$df_{diff}$
<b>Full measurement model</b>	<b>18490 (168)</b>	<b>.957</b>	<b>.957</b>	<b>.051</b>	<b>.065</b>		
Model A <sup>a</sup>	136138 (183)	.680	.680	.134	.105	117648	15***
Model B <sup>b</sup>	27382 (174)	.936	.936	.062	.070	8892	6***
Model C <sup>c</sup>	160540 (186)	.623	.623	.145	.111	142050	18***
Model D <sup>d</sup>	92426 (179)	.783	.783	.112	.097	73936	11***
Model E <sup>e</sup> (Harman's single-factor test)	231644 (189)	.456	.456	.172	.128	213154	21***

Notes: N = 69,018, \*\*\*p<.001;  $X^2$ =chi-square discrepancy, df=degrees of freedom; NFI=Normed Fit Index; CFI=Comparative Fit Index; RMSEA=Root Mean Square Error of Approximation; SRMR= Standardized Root Mean Square Residual,  $X^2_{diff}$ =difference in chi-square,  $df_{diff}$ =difference in degrees of freedom; in all measurement models. All models are compared to the full measurement model.

<sup>a</sup>=Perceived HRM practices combined into one factor

<sup>b</sup>=Quality of care and safety combined into one factor

<sup>c</sup>=Perceived HRM practices and work engagement combined into one factor

<sup>d</sup>=Work engagement, quality of care and safety combined into one factor

<sup>e</sup>=All constructs combined into one factor

**TABLE 3**  
**Structural Equation Model Comparisons - Nurses**

Models	$\chi^2/df$	NFI	CFI	RMSEA	SRMR
Saturated model	17095 (169)	.961	.961	.049	.047
Direct effects model	32721 (175)	.925	.925	.067	.135
Indirect effects model	19474 (177)	.955	.955	.051	.061
Final model	17198 (174)	.960	.961	.048	.047

Notes: n = 42,357



**TABLE 4**  
**Structural Equation Model Comparisons – Administrative support staff**

Models	$\chi^2/df$	NFI	CFI	RMSEA	SRMR
Saturated model	10527 (169)	.958	.959	.048	.067
Direct effects model	19596 (175)	.922	.923	.065	.138
Indirect effects model	11487 (177)	.954	.955	.049	.074
Final model	11248 (176)	.955	.956	.049	.071

Notes: n = 26,661

## **Appendix 1**

### *Perceptions of HRM practices*

#### *Training opportunities*

My training, learning and development has helped me to do my job better

My training, learning and development has helped me stay up-to-date with my job

My training, learning and development has helped me stay up-to-date with professional requirements

#### *Opportunities for development*

There are opportunities for me to progress in my job.

I am supported to keep up to date with developments in my field.

I am encouraged to develop my own expertise.

#### *Participation in decision-making*

I am able to make suggestions to improve the work of my team/department.

There are frequent opportunities for me to show initiative in my role.

I am able to make improvements happen in my area of work.

#### *Communication*

Communication between senior management and staff is effective

On the whole, different parts of the organisation communicate effectively with each other.

I know who the senior managers are here.

#### *Work Engagement*

I look forward to going to work.

I am enthusiastic about my job.

Time passes quickly when I am working.

#### *Quality of care*

I feel that my role makes a difference to patients/service users.

I am able to do my job to a standard I am personally pleased with.

I am able to do my job to a standard I am personally pleased with.

I am able to do my job to a standard I am personally pleased with.

*Safety*

In the last month, have you seen errors or near misses did you see that could hurt staff?

In the last month, have you seen errors or near misses did you see that could hurt staff?