

TITLE

**PROGRESSING IN THE CHANGE JOURNEY TOWARDS SUSTAINABILITY
IN HEALTHCARE: THE ROLE OF 'GREEN' HRM.**

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ABSTRACT

This study is the first that theorises and empirically tests, at the organisational level, the role that 'Green' Human Resource Management (HRM) practices play in facilitating employees' collective engagement in environment protection by taking voluntary actions that 'go the extra mile'. In this regard, we take an original perspective on Environmental Management (EM) as an organisational change that requires strong support from employees. This allows us to investigate the mediating role of collective commitment to change – and specifically to EM – with regard to the relationship between 'Green' HRM practices and collective voluntary behaviours towards the environment. Our results show that 'Green' HRM practices are conducive to voluntary behaviours towards the environment at the collective level. Moreover, employees' willingness to support their organisation in its EM endeavour partially mediates this relationship. Additionally, by conceptualizing three different types of 'Green' HRM practices, our results disentangle their relative importance and their differing impact on collective behaviours towards the environment. This paper thus provides scholars of EM and managers with original evidence-based guidelines on how to leverage 'Green' HRM to enhance employees' collective attitudes and behaviours towards the environment.

Keywords: Green Human Resource Management, Organisational Citizenship Behaviours toward the Environment, Affective Commitment to Change, Health Care, Hospitals, Environmental Management

1. INTRODUCTION

Environmental protection has emerged as one of the most urgent societal priorities (Howard-Grenville et al., 2014). Preserving the natural eco-system and its resources for future generations has thus become a major priority on the agenda of policy-makers and managers (Howard-Grenville et al., 2014).

Although environmental initiatives aimed at containing the environmental impacts of increasingly globalised activities have increased in recent decades in number and scope (Hoffman and Georg, 2013), previous studies have shown that the adoption of Environmental Management (EM) practices by organisations can last over time only when employees engage in supportive behaviours (Govindarajulu and Daily, 2004; Paillè et al., 2013; Pinzone et al., 2014).

Consequently, scholars interested in EM have devoted more attention to the role that employees and Human Resource Management (HRM) may play in organisational greening, as shown by the significant number of special issues of leading journals (e.g., Muller-Camen et al., 2010; Renwick et al., 2012; Taylor et al., 2012; Andersson et al., 2013; Kramar and Mariappanadar, 2015), and publications by professional bodies, such as the Society for Human Resource Management (SHRM, 2012) or the Chartered Institute of Personnel and Development (CIPD, 2013).

Within this ongoing debate, the theoretical perspective provided by Organisational Citizenship Behaviours (OCBs), such as Organisational Citizenship Behaviours towards the Environment (OCBEs) – which are defined as “individual and discretionary social behaviours that are not explicitly recognized by the formal reward system and that contribute to a more effective environmental management by organizations” (Boiral 2009, p. 223) – has gained significant consensus. Consistently with this view, when employees perform OCBEs, they engage in voluntary actions which extend above and beyond job requirements (Boiral, 2009; Daily et al., 2009) in order to contribute to a more effective EM (Boiral, 2009) and improve environment-related performances (Daily et al., 2009).

Moreover, past studies have argued that ‘Green’ HRM practices – defined as the ‘HRM aspects of Environmental Management’ (Renwick et al., 2013:1) – are salient in supporting environmental performance improvement (Jabbour and Santos, 2008; Jabbour et al., 2008; Jackson et al., 2011; Dubois and Dubois, 2012; Jabbour et al., 2013; Jackson et al., 2014; Jabbour and Jabbour, 2015; Jabbour et al., 2015).

Notwithstanding the significant attention paid to OCBEs, ‘Green’ HRM and EM performance, and despite the growing argument that ‘Green’ HRM is conducive to EM through employees’ engagement in OCBEs (Paillè et al., 2014), three main gaps still challenge our understanding of this relationship and call for further research.

First, although performances at the organizational level are affected by aggregate level of OCBEs and not by the actions of isolated individuals, as suggested by Organ (2006), past research has overlooked this level of analysis – with the remarkable exception of Paillè et al. (2014) – and focused primarily on the individual level (e.g., Cantor, 2012; Paillè et al., 2013; Ranieri and Paillè, 2015), thus leaving OCBEs at the collective level unexplored (Norton et al., 2015).

Second, current empirical evidence about which ‘Green’ HRM practices might enable and trigger employees’ OCBEs is still limited (Paillè and Boiral, 2013; Zibarras and Coan, 2015). From the behavioural perspective of HRM (e.g., Jackson et al., 2014) and considering that HRM has proved to be a significant determinant of OCBs (e.g., Sun et al., 2007; Gong et al., 2010; Messersmith et al., 2011), scholars of EM have argued that ‘Green’ HRM practices should be conducive to employees’ engagement to OCBEs. However, to the best of our knowledge, Paillè et al. (2014) are

still alone in providing empirical support for this argument. They found that HRM practices are positively associated with the adoption of OCBs at the organisational level. Despite the relevance of their contribution, their study did not: i) conceptualise ‘Green’ HRM practices; ii) disentangle the potential distinct effect of each HRM practice, since the authors focused on the aggregated effect of HRM, iii) theorise and empirically test the mechanism that links HRM practices and OCBs at the collective level.

Third, the psychological mechanisms through which ‘Green’ HRM practices are conducive to OCBs at the collective level have so far been overlooked. Recent studies at the individual level have shown that affective commitment to environmental issues works as the significant attitude that drives employees’ OCBs (Cantor, 2012; Raineri and Paillé, 2015). Empirical findings have confirmed that when employees feel committed to the implementation of environmental practices, they ‘go the extra mile’ in environmental protection (Cantor, 2012; Raineri and Paillé, 2015). The theorization and testing of this relationship at the collective level are still to be addressed (Norton et al., 2015).

The result of these knowledge gaps is that executives still have no clear recommendations about how to promote EM in their organisations by stimulating their employees’ engagement in OCBs (Boiral, 2009; Lo et al., 2012; Young et al., 2013) leveraging on ‘Green’ HRM practices (Harvey et al., 2013; Paillé et al., 2014; Zibarras and Coan, 2015).

This study intends to narrow these gaps by theorising and empirically testing the determinants of collective OCBs at the organisation level of analysis. Specifically we link the implementation of different ‘Green’ HRM practices to employees’ collective engagement in OCBs. Additionally, we endorse the recent studies on EM and ‘Green’ HRM that have emphasised the role of ‘change’ in embedding sustainability in organisations (Daily et al, 2001; Hoffman, 2010; Jackson and Seo, 2010; Duboi and Duboi, 2012,). We therefore argue that collective affective commitment to EM change serves as a mediating mechanism between ‘Green’ HRM practices and collective OCBs. Collective affective commitment to EM change is conceptualized as a shared – by employees – affective attachment to EM change that binds employees to actions perceived as necessary for the successful implementation of EM. On this view, when employees feel affectively committed to EM change, they *want* to support their organisation in its EM endeavour and they discretionarily go beyond their formal job requirements.

This study was developed as part of a transformative process that the National Health System (NHS) in England is implementing in order to improve the environmental performance of hospitals. Responding to growing stakeholder pressure on environmental-related issues, the NHS has committed itself to the ambitious goal of achieving a 28% reduction of carbon dioxide equivalent emissions by 2020 (SDU, 2014). For this purpose, the NHS has created a new Unit—namely the Sustainable Development Unit (SDU)—to promote the development of EM strategies among hospitals and to support hospital sustainability managers in gaining commitment from both senior executives and employees. With specific regard to employees, the SDU aims at fostering collective behaviours towards environmental protection within hospitals.

By taking this unique opportunity to collect primary data from the field within this nation-wide EM transformation process, our results contribute to both theory and practice by providing evidence on the relationship between ‘Green’ HRM practices and collective OCBs at the organizational level and by shedding light on the causal mechanism that connects them.

The paper is structured as follows. First, we present the literature background to our conceptual framework and develop our hypotheses. Second, we describe the methodology adopted. Third we present our results, which are then discussed from both the theoretical and the practical perspectives. Finally, limitations and avenues for future research are illustrated.

2. THEORETICAL BACKGROUND AND HYPOTHESES

In this section, we first review the state-of-the-art on collective OCBs and 'Green' HRM practices and then develop our hypotheses on the direct relationship between 'Green' HRM practices and collective OCBs. Second, we introduce affective commitment to EM change and develop our hypotheses on the indirect effect of 'Green' HRM practices on collective OCBs through mediation by collective affective commitment to EM change.

2.1 The direct effect of 'Green' HRM practices on collective OCBs

Collective OCBs are aggregations of individual OCBs, defined as individual discretionary actions contributing to a more effective EM (Boiral, 2009) and directed towards the improvement of environment-related performance (Daily et al., 2009).

On this view, collective OCBs refer to 'the perception of what is considered the standard mode of behaviour in the unit' (Ehrhart, 2004:65) with regard to environmental matters. The focus of this construct is therefore shifted from the single employee to how the 'unit as a whole' is perceived (Ehrhart, 2004) to take into account the normative element emerging from social processes among individuals (Gong et al., 2010).

Collective OCBs result from both top-down and bottom-up processes (Gong et al., 2010). The top-down process relies on the assumption that employees subjected to the same stimuli are likely to develop a shared interpretation of the work experience and, thus, equal attitudes and behaviours (Cardona et al., 2004; Gardner et al., 2011; Mossholder et al., 2011). The bottom-up process is based on social learning processes deriving from repeated interactions and influences among employees (Gong et al., 2010; Chun et al., 2013). Employees have regular social contacts with each other, and OCBs performed by co-workers can be easily observed day-by-day, with the consequent creation of shared norms for environmental protection and stronger endorsement of OCBs at the collective level.

Although the adoption of OCBs cannot be mandated, managers can encourage the emergence of collective OCBs by shaping a supportive context through appropriate interventions (Boiral, 2009), such as 'Green' HRM practices (Dubois and Dubois, 2012; Harvey et al., 2013; Paillé et al., 2014; Zibarras and Coan, 2015), defined as the 'HRM aspects of Environmental Management' (Renwick et al., 2013:1).

In presenting 'Green' HRM, we have followed the well-established Ability-Motivation-Opportunity (AMO) theory (Applebaum et al., 2000) as recently recommended by Renwick et al. (2013). AMO theory argues that HRM practices contribute to organisational performance by increasing the extent to which employees *are able* to (i.e. have the competencies), *want* (i.e. have the motivation), and *can* (i.e. have opportunities) engage in behaviours that benefit the organisation (Jackson et al., 2014), such as OCBs (Organ, 2006). According to this view, 'Green' HRM practices can be distinguished among: (i) competence building practices, which improve employees' ability through training programmes; (ii) motivation enhancing practices, which increase employees' willingness to engage in behaviours that contribute to organisational performance through practices such as performance management; and (iii) employee involvement practices, which provide employees with the opportunity to engage in OCBs through ad-hoc involvement programmes. Although AMO theory has been mainly adopted at the individual level, Jiang et al. (2013) have recently argued that it also holds both conceptually and empirically at the organisational level.

2.1.1 'Green' Competence Building practices (Ability)

'Green' Competence Building practices enhance employees' environmental knowledge and skills (Teixeira et al., 2012; Vidal-Salazar et al., 2012; Jabbour, 2013; Jabbour, 2015). In particular, they aim at increasing employees' ability (i) to recognize environmental issues (Govindarajulu and

Daily, 2004), (ii) to understand and manage the complexity of environmental problems (Perron et al., 2006), and (iii) to comprehend how working activities might affect the environment (Daily and Huang, 2001). Moreover, by increasing employees' knowledge and skills, they make employees able both to identify environmental problems and take appropriate actions to minimize environmental impacts in the workplace (Vidal-Salazar et al., 2012). Based on these arguments, we hypothesise that:

H1.a. 'Green' Competence Building practices are positively associated with collective OCBs.

2.1.2 'Green' Performance Management practices (Motivation).

'Green' Performance Management practices aim at aligning the employees' behaviours with the organisation's environmental goals (Govindarajulu and Daily, 2004; Harvey et al., 2013). In fact, if EM activities are incorporated into performance appraisals, employees have clear information about their expected role in EM and are likely to adopt OCBs since they are extrinsically motivated (Becton et al., 2008). Coherently, it has been found that employees in organisations which include environmental activities in their staff performance management system are more likely to propose 'eco-initiatives' (Ramus and Steger, 2000). Therefore, we hypothesise that:

H1.b. 'Green' Performance Management practices are positively associated with collective OCBs.

2.1.3 'Green' Employee Involvement practices (Opportunity)

'Green' Employee Involvement practices provide employees with the opportunity to take the initiative on environmental issues (Jabbour and Santos, 2008; Dubois and Dubois, 2012).

The institutionalization of bi-directional communication flows between managers and employees facilitates the instilling of new environmental values in the organisation and the identification of *good practices* (Dubois and Dubois, 2012). Similarly, the implementation of suggestion schemes encourages employees to share their tacit knowledge and their day-by-day solutions for environmental problems (Boiral, 2002). The use of 'green' teams promotes collaboration among individuals and facilitates the creation and implementation of new 'green' ideas (Daily et al., 2012; Jabbour et al., 2013; Dangelico, 2014). We thus hypothesise that:

H1.c. 'Green' Employee Involvement practices are positively associated with collective OCBs.

Besides positing the direct relationship between 'Green' HRM practices and collective OCBs, we argue that their relationship is mediated by collective affective commitment to EM Change. Accordingly, in the next subsections, we first define what we mean by collective affective commitment to EM change and then develop our hypotheses accordingly.

2.2 The mediating role of affective commitment to Environmental Management change

Introducing EM into organisations requires profound changes in their corporate culture, by which is meant that previous values, norms and mind-sets must be aligned with the new environmental goals (Hoffman, 2010; Eccles et al., 2012). Changes are also needed to implement novel policies, processes, and practices to ensure that environmental impacts are taken into account and addressed in daily activities (Jabbour and Santos, 2008). EM has therefore been acknowledged as an organisational change that should permeate the entire organisation (Pinzone et al., 2012; Dubois and Dubois, 2012) and whose implementation requires employees' commitment (Pinzone et al., 2014).

Coherently with this view, we suggest that collective commitment to change— where 'change' denotes EM change in this study – explains why employees collectively adopt OCBs, deciding to 'go the extra mile' in environmental protection activities to guarantee implementation of an effective EM and improvement of environmental performance.

Affective commitment to change, which forms the basis from which collective affective commitment to change emerges, is defined by Herscovitch and Meyer (2002, p. 475) as a '*desire* mind-set that binds an individual to a course of action deemed necessary for the successful

implementation of a change initiative'. Affective commitment to change thus represents employees' emotional buy-in into the change, described as 'not only positive attitudes toward the change, but also alignment with the change, intentions to support it, and a willingness to work on behalf of its successful implementation' (Herold et al., 2008, p. 347). Accordingly, when employees feel affectively committed to a change, they believe in its inherent benefits (Herscovitch and Meyer, 2002) and, consequently, *want* to exert extra effort in order to secure the success of the change initiative (Parish et al., 2008). In this regard, empirical research provides evidence that affective commitment to change is distinct from the general organisational commitment, and that it is a better predictor of support for change and extra-role behaviours such as cooperation and championing (Meyer et al., 2007; Jaros, 2010).

According to extant research, collective affective commitment to change emerges in organisations (i) because employees managed by the same practices and subjected to the same stimuli in the organisation tend to develop a shared understanding of the relationship with the organisation (Cardona et al., 2004; Mossholder et al., 2011) and (ii) because of the social influence among individual employees (Gong et al., 2010; Chun et al., 2013).

Because we are concerned with EM, we focus on collective affective commitment to EM change. Leveraging on the definition by Herscovitch and Meyer (2002), we conceptualise collective affective commitment to EM change as a *desire* mind-set shared by employees in the organisation that binds them to a course of action deemed necessary for the successful implementation of EM change.

Organisational change is closely associated with HRM practices because the latter provide employees with clear signals about what organizations think is important in their greening strategies (Jackson and Seo, 2010; Jamali et al., 2014).

Since, to the best of our knowledge, there are no previous studies that have linked collective affective commitment to EM change and 'Green' HRM at the organisational level, we develop our hypothesis (i) on the basis of past studies about commitment to change and HRM at the individual-level and (ii) assuming homology between the collective and individual-levels (Chan, 1998).

With regard to our study, competence building, performance measurement and involvement HRM practices have already been recognised as effective tools with which to foster employees' commitment to change (Jaros, 2010; Choi, 2011; Fugate, 2012).

Competence Building practices increase employees' commitment to change by increasing their perception of being able to master the new demands (Shum et al., 2008; Choi, 2011). In detail, these practices help employees in cognitively evaluating the content and potential impact of change. They help employees in overcoming knowledge assimilation barriers and foster the employees' sense of change efficacy (Neubert and Cady, 2001; Herold et al., 2007), with the final result of gaining their support for change.

The use of performance appraisal to align employees' goals with those of the organisation as well as the provision of systematic feedback have proved (Narine and Persaud, 2003; Parish et al., 2008) to: (i) increase employees' understanding of the need to change, (ii) minimize uncertainty during the change process. These effects are necessary to gain and maintain employees' commitment to change (Narine and Persaud, 2003).

Employee Involvement practices support employees' commitment to change because (i) they can actively participate in the change process (Narine and Persaud, 2003), (ii) they bi-directionally communicate with managers (Conway and Monks, 2008), and (iii) they perceive that they have autonomy and can impact how change is implemented (Parish et al., 2008).

Coherently with this view, we suggest that collective affective commitment to EM change mediates the relationships among 'Green' Competence Building, 'Green' Performance Management, 'Green' Employee Involvement practices and collective OCBs. In short, 'Green' HRM practices represent

an organisation's investment in (i) staff environmental competences, (ii) recognition of their contribution to EM and (iii) support for their environmental values and ideas; an investment that employees are likely to reciprocate by offering their affective commitment to EM change, which in turn influences the extent to which they 'go the extra mile' in environmental protection by collectively engaging in OCBs. Therefore, we state the following hypothesis:

H2. Collective affective commitment to EM change mediates the relationship among a) 'Green' Competence Building, b) 'Green' Performance Management, c) 'Green' Employee Involvement practices and collective OCBs.

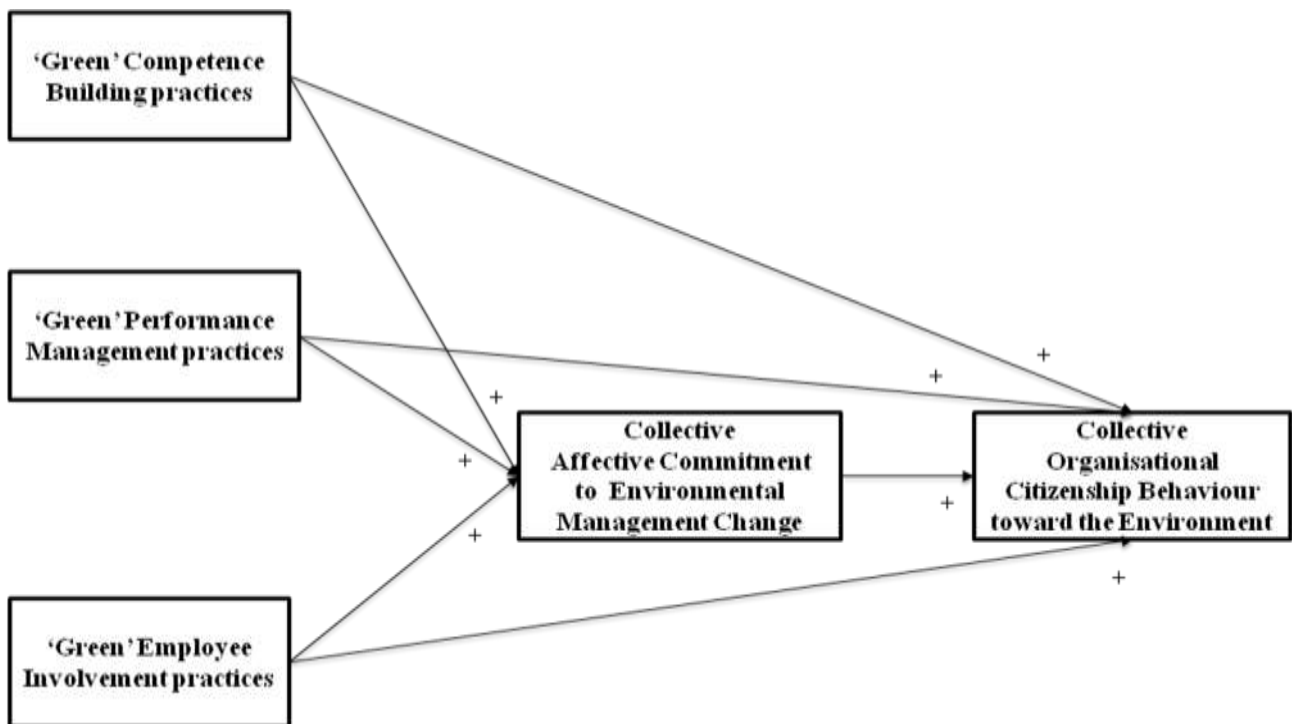


Figure 1. Theoretical model and hypotheses

3. METHOD

We tested our hypotheses by means of a survey carried out among the National Health Service (NHS) organisations in England between May and July 2013. Our design choice to focus on a single sector and country was due to our desire to reduce the confounding effects of non-controllable factors in our empirical research, such as the economic, legislative and cultural contexts.

3.1 Research Context

The NHS in England has calculated its carbon footprint as 21 million tonnes of CO₂e (SDU, 2009). It accounts for 25% of public sector emissions in the UK and it is the largest public sector contributor to climate change in England (SDU, 2009). It has committed to reducing its carbon footprint by 28% by 2020 (SDU, 2014). To support healthcare organisations in progressing in their sustainability journey, a dedicated national Unit – named the Sustainable Development Unit (SDU) – has been created. SDU acts as a reference point for addressing sustainability-related issues and organisations to change their attitudes and behaviours in regard to the environment. Consequently, the salience of the environmental challenge and the impetus to take action have now begun to spread in the NHS in England (Pencheon, 2013). However, despite this increasing attention, the issue of how to raise the profile of sustainability and engage professionals in the improvement of

environment protection is still unresolved, as evidenced by the results of a consultation and engagement exercise carried out among the English health and care organisations in 2013 (SDU, 2013). Accordingly, a specific module of the Sustainable Development Strategy 2014–2020 has been devoted to “Leadership, engagement and workforce development”.

3.2 Sample

Since our study is located at the organisation level of analysis, we identified the best key informants for our questionnaire as similar previous studies have done (e.g., Gong et al., 2010). Like those studies, we drew on both the aggregate properties model and the referent shift model (Chan, 1998). Whilst the aggregate properties model (Chan, 1998) suggests consulting an expert to assess “the collective as a whole” when s/he has unique knowledge of, and experience in, assessing the unit-level property investigated, the referent shift model (Chan, 1998) suggests consulting unit-level referents to assess unit-level constructs.

We accordingly identified hospital Sustainability Managers as the most knowledgeable informants to fill-in our questionnaire. These, by virtue of their organizational role – in the specific context of the English NHS – have unique knowledge of environmental issues, ‘Green’ HRM practices, and collective staff reactions to them. In fact, a significant part of their responsibilities is to raise and monitor the level of employees’ commitment to EM and their engagement in ‘green’ behaviours.

This design choice receives support also from a recent research study that found significant consensus between Sustainability and HR Managers on the role HRM practices play in supporting the organisation’s ‘sustainability agenda’ (Guerci and Pedrini, 2014).

The SDU provided us with a list of 217 NHS Trusts engaged in EM change. We obtained 201 e-mail addresses, to which we sent an invitation letter explaining the research aim and containing the link to the survey. We collected 82 responses, giving a response rate of 40.8 %, which is line with other survey response rates from NHS organisations (Edwards, 2009).

Although the response rate can be considered highly satisfactory and the sample size was in line with those of previous published surveys investigating environmental issues (e.g., Murillo-Luna et al. 2011, Pinzone et al., 2014), the size of our final sample was relative small. Consequently, we adjusted our data analysis strategy by adopting the statistical methods most suitable for dealing with such small sample sizes, as reported in the ‘Measures’ and ‘Data analysis’ sections below.

3.3 Measures

All the constructs were measured by adapting previously published scales. Unless stated otherwise, responses were on a seven-point Likert scale ranging from ‘strongly disagree’ (1) to ‘strongly agree’ (7) (Appendix). We conducted a Confirmatory Factor Analysis and, for each construct, we calculated the Average Variance Extracted (AVE), the Composite Reliability (CR) and the Cronbach’s alpha to establish its convergent validity and reliability. All the AVE, CR and Cronbach’s alphas (Table 1) were at acceptable levels. Finally, all the AVE values were greater than the Squared Interconstruct Correlations, demonstrating discriminant validity among our constructs.

Collective OCBEs. Drawing on the referent shift model (Chan, 1998), we adapted its wording to the level of analysis (i.e. the organisational level in our case). We asked respondents to rate the frequency with which staff engage in eight behaviours included in the OCBEs measure proposed by Boiral and Paillé (2012) and that Sustainability Managers have the opportunity to observe. Each item was assessed on a five-point scale, as in Boiral and Paillé (2012), ranging from ‘not at all’ (1) to ‘at every available opportunity’ (5). The eight behaviours evaluated by Sustainability Managers covered the three main types of OCBEs (Boiral and Paillé, 2012): 1) ‘eco-initiatives’ (e.g., ‘Employees willingly do additional work that can result from environmental practices’); 2) ‘eco-civic engagement’ (e.g., ‘Employees volunteer for projects, initiatives or events that address

environmental issues in the Trust’); 3) ‘eco-helping’ (e.g., ‘Employees encourage work colleagues to care about environmental issues’). The AVE was equal to 0.56 and the CR was equal to 0.91.

‘Green’ Competence Building practices. We used two items adapted from Sun et al. (2007) and Renwick et al. (2013): e.g. ‘In my Trust environmental issues are included in the induction process’; ‘In my Trust environmental training is a priority compared to other types of training’. The AVE was equal to 0.53 and the CR was equal to 0.69.

‘Green’ Performance Management practices. ‘Green’ Performance Management practices were assessed using three items adapted from Sun et al. (2007), namely ‘In my Trust employees’ environmental activities are evaluated during the staff appraisal process’, ‘In my Trust performance appraisals include environmental objectives’, ‘In my Trust employee appraisals emphasize environmental skills and competences’. The AVE was equal to 0.86 and the CR was equal to 0.95.

‘Green’ Employee Involvement practices. ‘Green’ Employee Involvement practices were measured with four items adapted from Sun et al. (2007) (e.g., ‘In my Trust employees are allowed to make decisions concerning environmental problems’, ‘In my Trust employees participate into problem-solving groups related to environmental matters’). The AVE was equal to 0.54 and the CR was equal to 0.82.

Collective Affective Commitment to EM change. As above, following the referent shift model (Chan, 1998), collective Affective Commitment to EM change was measured by means of six items adapted from the affective commitment to change scale used by Herscovitch and Meyer (2002), with a sample item being ‘Employees believe Environmental Management serves an important purpose in the Trust’. The AVE was equal to 0.58 and the CR was equal to 0.89.

Control variables. At the organisational-level, we controlled for the size of the Trust, which has been associated with a more sophisticated approach to HRM, and measured it by means of the number of beds, as in previous research (e.g., Baluch et al., 2013).

At the individual respondent level, we controlled for the respondent’s positive affectivity to minimize systematic measurement errors. Positive affectivity refers to differences in the dispositional tendency of individuals to focus on the positive aspects of themselves and their environment (Watson et al., 1988). It has been suggested that it is a potential source of artifactual inflation of constructs and relationship measures (Chan, 2001). Positive affectivity was measured using a four-item scale from Agho et al. (1992) (e.g., ‘I live a very interesting life’), having an AVE of 0.60, a CR of 0.85 and a Cronbach’s alpha of 0.81.

3.4 Common Method Variance (CMV)

Since our data were obtained from a single respondent, the potential for CMV may be a concern (Podsakoff et al., 2003). In order to minimize the possible effects of CMV, we adopted a series of remedies following the recommendations of Podsakoff et al. (2003). During the design and administration of the questionnaire, we reviewed all the items to be sure that ambiguous, vague and unfamiliar terms were not included. Moreover, we guaranteed confidentiality to respondents, emphasizing that there were no correct or incorrect answers and asking them to provide independent and honest answers. Additionally, as reported in the ‘Measures’ section, we introduced an ‘ad-hoc scale’ to control the possible bias introduced by the respondents’ affective state (Redman et al., 2011). After the data collection, the Harman’s single-factor test was conducted on the items of our theoretical model. The outcome of the test showed that there were eight factors and that the highest variance accounted for by one factor was 29%, indicating minimal evidence of CMV (Harman, 1967).

We also applied the method proposed by Liang et al. (2007), using a unmeasured latent method factor (Podsakoff et al., 2003). According to Liang et al. (2007), CMV is unlikely to be a serious concern if: i) the method factor loadings are insignificant; ii) the indicators’ substantive variances

are substantially greater than their method variances. We found that in our case all the method factor loadings were not significant, with the exception of two of them (i.e., ‘Employees are provided the opportunity to suggest improvements on environmental issues’ and ‘For me, life is a great adventure’). Moreover, all the indicators’ substantive variances were substantially greater than their method variances (the highest indicator’s method variance was 0.098). In particular, for the item ‘Employees are provided the opportunity to suggest improvements on environmental issues’ the method variance was equal to 0.086 and the substantive variance was equal to 0.889, while for the item ‘For me, life is a great adventure’ the method variance was equal to 0.029 and the substantive variance was equal to 0.755. Therefore, we could conclude that CMV is not a serious concern in our study (Liang et al., 2007).

3.5 Data analysis

Our hypotheses have been tested through a path analysis with Stata12, using the maximum likelihood estimation method because of the relative small size of our sample. Path analysis is the best approach for solving the trade-off (Kline, 2011) between (i) the need to have a statistical technique able to estimate both the direct and the indirect effects of multiple interacting variables, and (ii) the need to have a large number of observations); although it does not allow account to be taken of the error from the measurement of latent variables.

We calculated the value of the construct-related variable by averaging the values of the items used to measure it, and we used bootstrap standard errors (5,000 replications) to carry out the path analysis. Bootstrapping has been recommended as the preferable method to test mediation (MacKinnon et al., 2002; Cheun and Lau, 2008) and to obtain more accurate inferences when the sample size is small (Hoyle, 1999; Fox, 2008).

4. RESULTS

This section reports the results of the empirical analysis. Table 1 shows the means, standard deviations and correlations of the study variables. The Cronbach’s alphas are reported along the diagonal.

	Mean	Standard Deviation	1	2	3	4	5
1. ‘Green’ Competence Building practices	3.22	1.36	0.67				
2. ‘Green’ Performance Management practices	2.48	1.25	0.42***	0.95			
3. ‘Green’ Employee Involvement practices	4.29	1.24	0.34**	0.38***	0.82		
4. Collective Affective Commitment to EM	4.86	0.95	0.28**	0.23†	0.48***	0.87	
5. Collective OCBs	2.77	0.58	0.47***	0.47***	0.56***	0.51***	0.91

† p<0.1; * p<0.05; **p<0.01; *** p< 0.001

Table 1. Means, standard deviations, correlations and Cronbach’s alphas of the construct-related variables included in the path analysis

The proposed model provided a good fit to the data, as shown in Table 4. Coefficients, bootstrap standard errors, and significance levels are reported in Table 2.

Among the control variables, only the number of beds was found to be positively and significantly related to collective affective commitment to EM change.

Our first set of hypotheses (H1.a, H1.b, H1.c) refers to the relationships between ‘Green’ HRM practices and collective OCBs. Our results provide support for H1.a, H1.b, and H1.c, confirming

that 'Green' Competence Building practices ($\beta=0.19$; $p<0.05$), 'Green' Performance Management practices ($\beta=0.21$; $p<0.05$) and 'Green' Employee Involvement practices ($\beta=0.34$; $p<0.01$) are positively and significantly related to collective OCBs.

Our second set of hypotheses (H2.a, H2.b, H2.c) suggests that collective affective commitment to EM mediates 'Green' Competence Building, 'Green' Performance Management, and 'Green' Employee Involvement practices on collective OCBs. First, we found that affective commitment to EM change is positively and significantly related to collective OCBs ($\beta=0.25$; $p<0.01$). Moreover, we found a positive association between 'Green' Employee Involvement practices ($\beta=0.55$; $p<0.001$) and affective commitment to EM change. As shown in Table 3, affective commitment to EM change mediates about 29% of the total effect of 'Green' Employee Involvement practices, providing support for H2.c. Finally, the relationships between i) 'Green' Performance Management practices and ii) 'Green' Competence Building practices with collective affective commitment to EM change were found not to be significant. Therefore, H2.a and H2.b are not supported.

	Observed Coeff.	Bootstrap Std. Err.	z	P> z	95% Conf. Interval	
'Green' Competence Building practices → Collective OCBEs	0.19	0.09	1.96	*	0.00	0.37
'Green' Performance Management practices → Collective OCBEs	0.21	0.09	2.29	*	0.03	0.40
'Green' Employee Involvement practices → Collective OCBEs	0.34	0.11	3.14	**	0.13	0.55
Collective Affective Commitment to EM → Collective OCBEs	0.25	0.09	2.68	**	0.07	0.43
Number of beds → Collective OCBEs	0.21	0.12	1.68	n.s.	-0.03	0.45
Positive affectivity → Collective OCBEs	-0.10	0.11	-0.92	n.s.	-0.32	0.11
Constant → Collective OCBEs	1.89	0.85	2.22	*	0.22	3.55
'Green' Competence Building practices → Collective Affective Commitment to EM	0.10	0.15	0.69	n.s.	-0.19	0.39
'Green' Performance Management practices → Collective Affective Commitment to EM	-0.03	0.13	-0.21	n.s.	-0.29	0.23
'Green' Employee Involvement practices → Collective Affective Commitment to EM	0.54	0.11	5.06	***	0.33	0.76
Number of beds → Collective Affective Commitment to EM	0.20	0.09	2.13	*	0.02	0.38
Positive affectivity → Collective Affective Commitment to EM	0.005	0.13	0.04	n.s.	-0.24	0.25
Constant → Collective Affective Commitment to EM	2.49	0.89	2.80	**	0.74	4.23

† p<0.1; * p<0.05; ** p<0.01; *** p<0.001; n.s. non-significant

Table 2. Results of the path analysis

Additionally, we calculated the different effect of each ‘Green’ HRM practice. As shown in Table 3, ‘Green’ Employee Involvement practices have the greatest total effect on collective OCBs, followed by ‘Green’ Performance Management practices and then by ‘Green’ Competence Building.

	Total Effect	Direct effect	Indirect effect
‘Green’ Competence Building practices	0.19	0.19	0.00
‘Green’ Performance Management practices	0.21	0.21	0.00
‘Green’ Employee Involvement practices	0.48	0.34	0.14

Table 3. Decomposition of ‘Green’ HRM practices’ effects on collective OCBs

Finally, we compared the goodness of fit of our model with an alternative model, namely a fully mediated one. As reported in Table 4, the fully mediated model provided a worse fit to the data than the model we proposed.

	Proposed model	Fully mediated model	Thresholds (Hair et al., 2006)
Baseline comparison	CFI = 0.96	CFI = 0.60	> 0.90
Information criteria	AIC = 2430; BIC = 2511	AIC = 2448; BIC = 2518	the lower the better
Population error	RMSEA = 0.10; (PCLOSE = 0.191)	RMSEA = 0.23; (PCLOSE = 0.00)	< 0.10 (p > 0.05)
Size of residual	CD = 0.56	CD = 0.36	the closer to 1 the better

Table 4. Comparison of alternative models

5. DISCUSSION AND IMPLICATIONS

In this study we developed and empirically tested a model to investigate the adoption of collective OCBs and the role of ‘Green’ HRM practices in promoting them. We considered ‘Green’ Competence Building, ‘Green’ Performance Management, and ‘Green’ Employee Involvement practices as antecedents of collective OCBs, and we suggested that collective affective commitment to EM change is the linking mechanism between ‘Green’ HRM practices and collective OCBs.

We found that ‘Green’ Competence Building, ‘Green’ Performance Management, and ‘Green’ Employee Involvement practices positively influence collective OCBs. Moreover, we found that collective affective commitment to EM change positively affects the extent to which employees perform collective OCBs, and that it partially mediates the effect of ‘Green’ Employee Involvement practices.

Our study contributes to the existing literature by advancing knowledge about the internal collective mechanisms involving employees that are crucial for implementing EM and achieving superior environmental performance. Specifically, it offers three contributions to theory and research.

First, our study sheds new light on OCBs by shifting the investigation’s focus from the individual level to the organisational level. Accordingly, we respond to researchers who have recently recognised the importance of studying OCBs at multiple levels of analysis (e.g., Paillé et al., 2014; Norton, 2015). Most of the existing studies consider individual OCBs and are therefore unable to account for social dynamics that are important for organisational outcomes (Ehrhart, 2004). Instead, our conceptualization of collective OCBs, leveraging on the work by Ehrhart (2004), reflects how

the collective 'as a whole' is perceived. It thus captures social processes among employees that lead to a shared perception of OCBEs as the *standard way of behaving* on environmental issues, which over time can have a 'meaningful effect on unit performance' (Podsakoff et al., 2014, p. 91).

Second, our study contributes to the literature by proposing a conceptualisation of 'Green' HRM practices grounded on AMO theory and by providing an answer to the question of what 'Green' HRM practices positively influence OCBEs at the collective level.

Our findings show that employees as a whole are more likely 'go the extra mile' in environmental activities when their abilities are increased through 'Green' Competence Building practices. Since pro-environmental behaviours are cognitively complex and require creativity, cognitive flexibility, and problem solving capabilities (Graves et al., 2013), employees are more likely to engage in OCBEs when they develop a shared perception of the competences that are necessary to assess the impacts of their working activities, make informed decisions on how to handle environmental problems, and take initiatives to solve them (Vidal-Salazar, 2012; Jabbour, 2015). Our findings also suggest that including environmental aspects in performance management increases employees' willingness to put extra efforts into EM. In fact, employees perceive the use of 'Green' Performance Management practices as a positive signal of their organisation's concerns about the environment (Harvey, 2013), and they react in aggregate to that signal by collectively engaging in OCBEs. Furthermore, 'Green' Employee Involvement practices are found to enhance collective OCBEs. Employees are more inclined to make discretionary environmental efforts if the organisation creates opportunities for them to take initiatives, make suggestions and share knowledge (Boiral, 2002) and collaborate with other actors to implement new initiatives addressing environmental issues (Daily et al., 2012; Jabbour et al., 2013).

Third, our study increases understanding of collective affective commitment to EM change as the attitude driving collective OCBEs and its mediating role in the relationship between 'Green' HRM practices and collective OCBEs. Accordingly, we have responded to Jackson et al.'s (2011) call for further research on 'specific HRM philosophies, policies and/or practices that support or inhibit change around environmental issues'.

Our results support the expectation that 'Green' Employee Involvement practices positively contribute to collective affective commitment to EM change and, thus, collective OCBEs. Therefore, when employees are asked to participate in the design and implementation of EM activities, are provided with frequent communications about the benefits that changes will produce, and are allowed to make suggestions and improvements on environmental matters, their identification with and internalization of the EM-related changes increases their collective affective commitment to EM change (Neuber and Cady, 2001) and, thus, their collective OCBEs.

Contrary to our expectations, we did not find collective affective commitment to EM change mediates the influence that 'Green' Performance Management practices and 'Green' Competence Building practices have on collective OCBEs.

Regarding 'Green' Performance Management, it might be that these practices affect more extrinsic motivational drivers rather than intrinsic motivational drivers such as affective commitment. Equally, past studies have raised concerns about the effectiveness of performance management in the healthcare sector. In fact, performance appraisal in the English NHS has been criticised as rather ineffective at driving changes in employee behaviour (Redman et al., 2000).

Regarding 'Green' Competence Building practices, previous studies on EM have suggested that these practices are usually intended to achieve two objectives (Sammalisto and Brorson, 2008): i) enhance employees' knowledge and skills on EM; ii) increase employees' motivation towards environmental practices. It might be that, in the context of EM in English hospitals, 'Green' Competence Building practices have been primarily intended to achieve the first objective, focusing more on improving employees' knowledge and skills on environmental policies and procedures than on enhancing employees' favourable attitudes toward EM change.

Our study also has significant implications for practice.

First, we provide managers with evidence-based indications on the relative importance that different 'Green' HRM practices have in encouraging collective OCBs. This allows them to prioritise their interventions. In this regard, managers could valuably create opportunities for involvement in environmental activities, appraise contribution to EM and enhance 'green' competences.

Second, our research shows that collective OCBs are influenced by employees' collective attitude toward EM, which can be shaped by managers with appropriate efforts. Indeed, managers should act as 'change agents' (Jamali et al., 2014) and increase collective affective commitment to EM change by means of 'Green' Employee Involvement. More specifically, they could design their interventions in such a way that employees' willingness to support EM is elicited. They could also monitor progress by considering not only collective behaviours but also the level of collective affective commitment to EM change, for example through attitude surveys.

6. LIMITATIONS, FUTURE RESEARCH AND CONCLUSIONS

Our results should be interpreted in light of our study's limitations, which future research should address.

First, we used a cross-sectional design. Consequently, we cannot offer definitive conclusions on causation. Future longitudinal research would be useful in establishing causality.

Second, even though our survey had a response rate equal to 40%, our sample size was relatively small, so that additional research based on larger samples is needed to confirm our findings. Moreover, our data come from a single country and sector. Hence, the generalizability of our results should be proven by future research. In this regard, we encourage scholars of EM to test our hypotheses in different institutional and governance settings (e.g., developed and developing countries).

Third, although we took advantage of hospital sustainability managers as key informants, in the end they were single respondents. Although we implemented several strategies to mitigate the potential bias, and although the tests performed indicated there were no major concerns of CMV, future research relying on multiple informants would be of value.

Fourth, our results suggest that collective affective commitment to EM change partially mediates the relationship between 'Green' HRM practices and collective OCBs. Further research is thus needed to explore other potential mediating factors, such as collective job satisfaction and collective efficacy (Gong et al., 2010). Furthermore, we invite researchers to conduct studies that simultaneously test the effect of collective affective commitment to EM change and organisational commitment, as well as studies that explore the role that the other two commitment to change components – namely the normative and continuance components (Herscovitch and Meyer, 2002) – might play.

In conclusion, despite its limitations, our study is the first that conceptualises collective OCBs and provides empirical support for the impact of 'Green' HRM practices on employees' collective OCBs and on their collective affective commitment to EM change. In this regard, our findings advance understanding of how organisations can progress in their sustainability journey through the enhancement of employees' collective attitudes and behaviours towards the environment by means of 'Green' HRM practices.

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APPENDIX

Questionnaire

'Green' Competence Building practices

To what extent do you agree or disagree with each of the following descriptions? of the human resources management practices employed by your Trust? [1=strongly disagree; 7=strongly agree]

1. Environmental issues are included in the induction process
2. Environmental training is a priority compared to other types of training

'Green' Performance Management practices

To what extent do you agree or disagree with each of the following descriptions of the human resources management practices employed by your Trust? [1=strongly disagree; 7=strongly agree]

1. Employees' environmental activities are evaluated during the staff appraisal process
2. Performance appraisals include environmental objectives
3. Employee appraisals emphasize environmental skills and competences

'Green' Employee Involvement practices

To what extent do you agree or disagree with each of the following descriptions of the human resources management practices employed by your Trust? [1=strongly disagree; 7=strongly agree]

1. Employees are allowed to make decisions concerning environmental problems
2. Employees are provided the opportunity to suggest improvements on environmental issues
3. Managers keep open communications with employees on environmental issues
4. Employees are involved in problem-solving groups related to environmental matters

Collective Affective Commitment to EM Change

Thinking about employees in your Trust *as a whole*, to what extent do you agree or disagree with each of the following statements? [1=strongly disagree; 7=strongly agree]

1. Employees believe in the value of environmental management for the Trust
2. Employees think environmental management is a good strategy for the Trust
3. Employees think management is making a mistake by investing in reducing the environmental impact of the Trust (R)
4. Employees believe environmental management serves an important purpose in the Trust
5. Employees think environmental management is not necessary for the Trust (R)
6. Employees believe things would be better if the Trust concentrated its efforts only on patients' care (R)

Collective Organizational Citizenship Behavior toward the Environment

Thinking about how employees in your Trust *as a whole* behave, how often do they do each of the following? [1=not at all; 5=at every available opportunity]

1. Employees actively participate in environmental events organized in and/or by the Trust
2. Employees stay informed on environmental activities in the Trust
3. Employees undertake environmental actions that contribute positively to the image of the Trust
4. Employees volunteer for projects, initiatives or events that address environmental issues in the Trust (e.g. serve on committees)
5. Employees suggest ways to reduce the environmental impacts of the Trust
6. Employees do everything they can to protect the environment at work
7. Employees encourage work colleagues to care about environmental issues
8. Employees willingly do additional work that can result from environmental practices