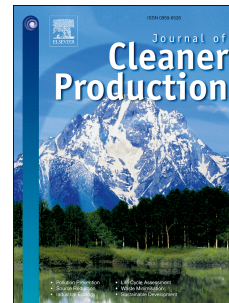


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Evidence from the Italian healthcare sector

Marta Pinzone, Marco Guerci, Emanuele Lettieri, Donald Huisingh



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## Effects of 'green' training on pro-environmental behaviors and job satisfaction: evidence from the Italian healthcare sector

*Marta Pinzone\** (corresponding author)

Politecnico di Milano, Department of Management Engineering, via Lambruschini 4/b, 20156, Milan (Italy). Phone: +39 02 2399 9541. E-mail: [marta.pinzone@polimi.it](mailto:marta.pinzone@polimi.it)

*Marco Guerci*

Università degli Studi di Milano, Department of Social and Political Sciences, via Conservatorio, 7, 20122, Milan (Italy). Phone: +39 02 503 21249. E-mail: [marco.guerci@unimi.it](mailto:marco.guerci@unimi.it)

*Emanuele Lettieri*

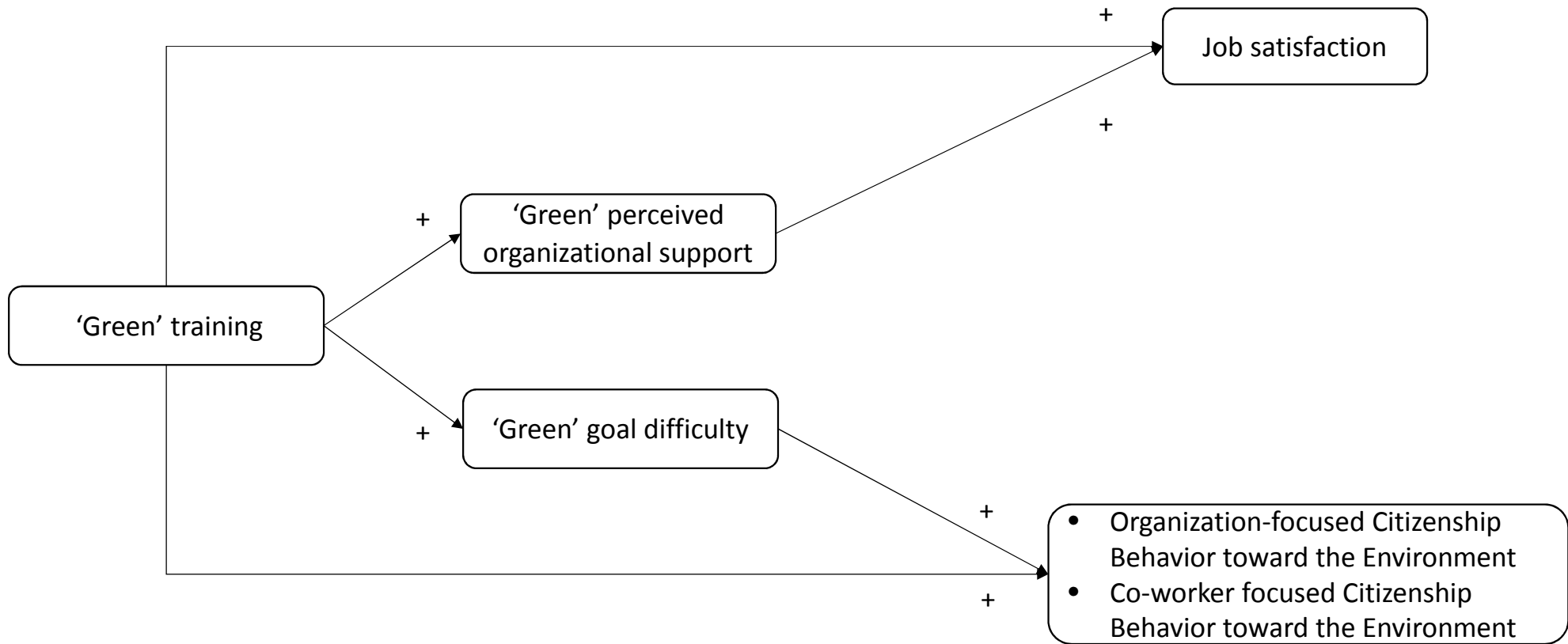
Politecnico di Milano, Department of Management Engineering, via Lambruschini 4/b, 20156, Milan (Italy). Phone: +39 02 2399 4077. E-mail: [emanuele.lettieri@polimi.it](mailto:emanuele.lettieri@polimi.it)

*Donald Huisingh*

University of Tennessee, Knoxville, Tennessee, USA. E-mail: [dhuisingh@utk.edu](mailto:dhuisingh@utk.edu)

**Abstract**

Literature of cleaner production shows that, for improving the environmental performance of the organization, it is important to provide employees with specific green-related competencies and to buy their commitment towards the green cause. Accordingly, studies explored the effects on environmental performance of green human resource management, in which green training (i.e. interventions aimed at developing green-related competencies) resulted as a key practice. This paper enriches the fast growing literature on green training in two directions. First, showing that green training is associated with employees engagement in voluntary pro-environmental behaviours; our evidence shows this relationship is mediated by the fact that green training enacts a sense of challenge in employees, which motivates them to engage in green-oriented discretionary effort. Second, the paper shows that – diversely from other types of training - green training makes employees more satisfied with their jobs; this relationship emerged as mediated by the employees' perception that green training is as a form of support provided by their employer, which makes their professional experience more satisfying. Those results are achieved through a survey to 260 healthcare professionals. This sector was selected as an extreme case, as current research has demonstrated that it is hard for healthcare professionals – given their organizational autonomy, and professional values - to engage in green-related behaviours, and to see their employer's support on the green cause as a driver for their job satisfaction. Implication for theory and practice are presented and discussed.



## 1. Introduction

The 'human dimension' is of paramount importance for the successful uptake and implementation of cleaner production (Jabbour et al. 2019), as environmental performance improvements are unlikely to materialise when employees are not committed (Nejati et al., 2017). Indeed, such improvements are largely dependent on employees' adoption of new practices and behaviours (Boiral et al., 2015).

Consequently, scholars interested in Environmental Management (EM) and cleaner production have devoted more attention to the role that employees and Human Resource Management (HRM) play in organisational greening, as shown by the significant number of articles in leading sustainability-focused journals, like the *Journal of Cleaner Production* (e.g. Masri and Jaaron, 2017; Macke and Genari, 2019; Jabbour et al. 2019).

In this regard, an emerging stream of research has adopted a 'behavioural perspective' on 'green' HRM practices – defined as the 'HRM aspects of Environmental Management' (Renwick et al., 2013:1) – and argues that they are crucial to foster employees' pro-environmental behaviours at work (Ren et al., 2017). In particular, previous studies (e.g. Paillè et al., 2014; Pinzone et al., 2016) have pointed out that 'green' HRM encourages the emergence of employees' Organisational Citizenship Behaviours toward the Environment (OCBEs), defined as 'individual and discretionary social behaviours that are not explicitly recognized by the formal reward system and contribute to more effective environmental management by organizations' (Boiral 2009:223). When employees engage in OCBEs, they go the extra-mile in environmental protection and voluntarily perform green actions aimed at improving the organization's environmental performance (Norton et al., 2015; Boiral et al., 2015, Robertson and Barling, 2017, Yuriev et al., 2018).

Among 'green' HRM practices, 'green' training—a process of on-the-job training and continued education designed to achieve corporate environmental management targets and purposes (Daily and Huang, 2001)—has attracted significant interest (e.g., Daily et al., 2012; Jabbour, 2013; Texteira et al., 2016). In particular, with respect to the employee perspective, two contrasting viewpoints have emerged from previous studies.

On the one hand, 'green' training has been identified as salient to address the individual barriers to pro-environmental behaviours (Yuriev et al., 2018) and to promote their adoption at work (Cantor et al., 2012), as it produces positive outcomes both for the organisations (e.g., the use of best practices and the improvement of environmental performance) and the employees (e.g., individual recognition to motivate pro-environmental behaviours) (Tramarico et al., 2017).

On the other hand, an emerging critical literature stream has pointed out the existence of a potential 'trade-off' between environmental outcomes and social outcomes stemming from 'green' training (Carollo and Guerci, 2018). Recent studies on training have, in fact, highlighted that it may also have negative effects on employees through an increasing work overload (Oppenauer and VanDeVoorde, 2018), time pressure, and stress (Topcic et al., 2015), decreasing the internal social sustainability of the organisation.

Consequently, notwithstanding the valuable insights on 'green' training in prior research, this leaves two major gaps in current knowledge.

First, even though the literature has suggested the existence of a positive causality between 'green' training and employees' pro-environmental behaviours (Unsworth et al., 2013), the linkage with OCBs has been argued mainly qualitatively and only seldom tested empirically. Moreover, despite the contribution by Saeed et al. (2018), the conceptualisation and evidence on the mechanisms through which 'green' training influences employees' OCBs is still in its infancy.

Second, previous empirical investigations on 'green' training have focused mainly on its effects on environmental performance, rarely considering other effects on employees (Ren et al., 2017). Accounting for the notable exception of Wagner (2011), there is little empirical evidence about the effects of 'green' training on job satisfaction – i.e. the degree to which an individual enjoys her job (Lu et al., 2005) - and of the individual-level mechanisms through which these effects can materialise.

Located within the on-going debate on the outcomes of 'green' training, this study aims at narrowing the above-mentioned gaps by theorising and empirically testing the effects of 'green' training on both: i) OCBs performed by employees, which are expected to benefit the organisation in terms of environmental

sustainability; and ii) job satisfaction, which benefits employees and is an important indicator of the internal social sustainability of the organisation.

Furthermore, this study investigates two mediating mechanisms between 'green' training and OCBs and job satisfaction, respectively. Specifically, it focuses on the role of: i) 'green' goal difficulty (i.e., the level of ability and resources, in terms of effort and time, which are necessary to achieve 'green' goals) in mediating the effect of 'green' training on OCBs; and on ii) 'green' perceived organisational support (i.e., the specific belief held by employees that concerns how much the organization values their contributions toward sustainability and how the organization demonstrates concern for their environmental values at work) in mediating the effect of 'green' training on job satisfaction.

To test our model, we gathered data by means of a survey carried out at a large Italian hospital. There are several reasons why healthcare is particularly interesting for studying the outcomes of 'green' training.

First, healthcare creates significant environmental impacts (Ryan-Fogarty et al., 2016) by employing large amounts of hazardous and non-hazardous materials and producing polluting outputs (Pasqualini Blass et al., 2017) along its multi-level supply chain (Gharai et al., 2018). For instance, according to Marsh et al. (2016) the US healthcare sector produced 546 MtCO<sub>2</sub>e in 2007, accounting for 8% of the overall greenhouse gas emissions in the US that year. More recently, it was estimated that the English health and social care carbon footprint was 27.1 MtCO<sub>2</sub>e in 2017, representing around 6.3% of the carbon footprint of England (SDU, 2018).

Second, healthcare is recognised as an 'extreme' context for EM (e.g., Pencheon, 2013; McGain and Naylor, 2014; Pinzone et al., 2015; Ryan-Fogarty et al., 2016; Pinzone et al., 2016; Cavicchi and Vagnoni, 2017; Pasqualini Blass et al., 2017; Seifert, 2018), since promoting OCBs is especially arduous in hospitals, where professionals—given their expert knowledge and power—are significantly autonomous in their decision-making and actions (Radaelli et al., 2017) and can resist external attempts to 'corrupt' their prime focus on patients with other goals (Currie et al., 2012), such as those related to the environment.

Finally, the concern of the effect of 'green' training on employees' well-being is particularly relevant in hospitals where professionals are recognised as a key stakeholder group (Hussain et al., 2018), whose satisfaction influences the quality of care, patient satisfaction and health outcomes (e.g., Dawson, 2014). This group is already under pressure because of the emotionally demanding nature of the profession and the increasing attempt to provide more and higher quality care using shrinking budgets (Carrieri et al., 2018).

In this context, our study contributes to the on-going debate about the outcomes of 'green' HRM and the employee dimension in EM and cleaner production as follows. First, while previous studies have been mainly qualitative and addressed OCBEs or job satisfaction separately, it provides quantitative evidence on these two main outcomes of 'green' training. Second, our findings offer novel insights into the mechanisms through which 'green' training influences both OCBEs and job satisfaction.

## **2. Theoretical Background and Hypotheses**

### **2.1. 'Green' training**

'Green' training can be defined as 'a process of on-the-job training and continued education designed to achieve corporate environmental management targets and purposes' (Daily and Huang, 2001). Among 'green' HRM practices, 'green' training is one of the most implemented in organisations (Jabbour, 2013) and is also acknowledged as an important practice for a successful implementation of EM (Jabbour et al., 2010), cleaner production (Diana et al., 2017) and green supply chain management (Texteira et al., 2016).

According to the *Ability-Motivation-Opportunity* theory, employees perform better when they are provided with the appropriate abilities, motivation, and organisational opportunities. In this context, 'green' training is an ability-enhancing practice (Renwick et al., 2013), which increases employees' green-related awareness, knowledge, and skills (Pinzone et al., 2016), which underpin several solutions to reduce environmental impacts (Siyambalapitiya et al., 2018).



Past studies have pointed out the main effects of 'green' training as follows. It serves: (i) to raise managers' and employees' awareness on how working activities and daily decisions can affect the environment (Daily et al., 2012) ; (ii) to provide employees with the ability to recognise environmental issues (Jabbour et al., 2010); (iii) to understand and manage the complexity of environmental topics (Vidal-Salazar et al., 2012); (ii) to provide employees with the ability to recognise environmental issues (Jabbour et al., 2010); (iii) to understand and manage the complexity of environmental topics (Vidal-Salazar et al., 2012); and (iv) to enable them to fulfil their environmental responsibilities and achieve the EM goals of the organisation (Daily and Huang, 2001).

Thus, these existing studies have revealed the importance of 'green' training as an enabler of pro-environmental employee behaviour. However, previous studies on general training have also indicated that training may have both positive and negative effects on employees' well-being (Oppenauer and VanDeVoorde, 2018; Topcic et al., 2015). Similarly, the existence of potential 'win-win' or 'trade-off' effects between environmental aspects (represented in our study by employees' OCBs) and social aspects (represented in our study by employees' job satisfaction) stemming from 'green' training have been recognised recently in critical literature (Carollo and Guerci, 2018). Therefore, it is important to test if 'green' training can improve the OCBs of employees as well as if 'green' training can also improve job satisfaction.

## 2.2. 'Green' training and employees' pro-environmental behaviours

### 2.2.1. *Organisational Citizenship Behaviours toward the Environment*

'*Organisational Citizenship Behaviours*' (OCBs) were defined by Organ (1997) as discretionary behaviours, not directly or explicitly recognised by the formal reward system and, taken together, promote the more effective functioning of the organisation. Depending on their nature, OCBs can be categorized in different dimensions (for a review refer to Podsakoff et al. 2000). Williams and Anderson (1991) provided a '*target-based*' framework in which these voluntary behaviours were divided into OCBs that directly benefit the

broader *organisation* (OCB-O), such as working extra-hours, and OCBs that directly benefit specific *organisational members* (OCB-I), such as helping a colleague in need.

Building on previous literature on OCBs, Boiral (2009) defined OCBEs as, 'individual and discretionary social behaviors not explicitly recognized by the formal reward system and contributing to improve the effectiveness of environmental management of organizations' (p. 223). Subsequently, Lamm et al. (2013) stated that OCBEs are, 'voluntary behaviors not specified in official job descriptions that, through the combined efforts of individual employees, help to make the organization and/or society more sustainable' (p. 165). Moreover, Robertson and Barling (2017) proposed three categories of OCBEs: i) self-enacted OCBEs, which employees enact without any intentional influence on others; ii) co-worker focused OCBEs, which are directed at influencing and helping co-workers to be more environmentally friendly; and iii) organisationally focused OCBEs, which reflect behaviours aimed at influencing the organisation to improve its environmental performance.

Overall, three main features are common to all available definitions: first, OCBEs benefit the environment; OCBEs are discretionary behaviours not recognised and rewarded by the formal organisational system; and third, cumulatively, they increase the effectiveness of the organisation in becoming 'green'.

Therefore, leveraging i) the '*target-based*' framework by Williams and Anderson (1991) and ii) the OCBEs categories proposed by Robertson and Barling (2017), this study focused on two main types of OCBEs:

- *Organisation-focused OCBE (OCBE-O)* that includes employees' discretionary, environmentally related behaviours not recognised by the formal reward system that support the environmental management of the organisation. The OCBE-O documents employees' voluntary participation in environmentally related projects, courses, and related events implemented by the organisation;
- *Co-worker focused OCBE (OCBE-I)* that includes employees' discretionary environmentally related behaviours not recognised by the formal reward system that support and help colleagues in integrating environmental protection into the organisation. OCBE-I documents those actions stemming from personal exchanges among employees within the organisation. It includes mutual assistance regarding

environmental issues, helping others in undertaking environmental protection behaviours, and sharing with colleagues new sustainability-related values.

Although the adoption of OCBEs cannot be mandated, managers can encourage the emergence of OCBEs by shaping a supportive context through appropriate interventions (Boiral, 2009). In this respect, 'green' training can help to create favourable conditions for the emergence of OCBEs. Based on their survey results on 'green' HRM and OCBEs, Dumont et al. (2017) suggested that organisations should consider providing employees with adequate 'green' training, since training serves multiple purposes. 'Green' training helps to equip employees with the necessary awareness, skills, and expertise for the successful implementation of green goals. It also increases their awareness and cognition of EM and organisational green values. Indeed, thanks to the diffusion of environmental awareness and competencies, employees become better able to take suitable actions to mitigate the environmental impacts in the workplace. They adopt new 'green' behaviours that are not necessarily mandated in job descriptions or recognised by the formal reward system. Moreover, given their multidimensional nature, these actions can be directed to more than one subject, either toward the organisation or colleagues. Therefore, the following hypothesis is developed:

**Hypothesis 1:** 'Green' training has a positive effect on employees' a) Organisation-focused OCBE (OCBE-O) and b) Co-worker focused OCBE (OCBE-I).

### 2.2.2. The mediating role of 'green' goal difficulty

Notwithstanding the direct relationship between 'green' training and OCBEs, we argue that this direct effect is partially mediated by 'green' goal difficulty, which is the level of ability and resources, in terms of effort and time, necessary to achieve a given goal (Wright, 2004). *Goal Setting Theory* (Locke and Latham, 2002; Latham et al., 2008) addresses the importance of defining the right level of difficulty of a certain goal and the degree to which it affects employees' performance.

Goal setting theory focuses on the types of goals that are likely to enhance employees' performance (Locke and Latham, 2002). It states that employees who are requested to achieve difficult, but not impossible, goals typically present a high level of performance (Locke and Latham, 2002), since employees regard

difficult goals with a sense of challenge and accomplishment, which motivates them to perform better. Moreover, challenging goals help employees stay focused (Wright, 2004). These theory-based prescriptions have been successfully employed in previous empirical research on the antecedents of OCBs (e.g., Taylor, 2013).

However, setting difficult goals is not enough for achieving high performance among employees. Indeed, difficult goals have positive effects on individual performance only when the employee perceives she has the knowledge and skills to attain it (Latham et al., 2008). Accordingly, it is necessary to train individuals to develop competencies and self-efficacy (Latham, 2004). Past research demonstrated that when people who are trained in proper strategies have difficult goals, they are more likely to use those strategies and, thereby, achieve better performance (Locke and Latham, 2002).

Applying the previous reasoning to environmental issues, we define 'green' goal difficulty as the level of ability and resources, in terms of effort and time, necessary to achieve 'green' goals. Further, we argue that 'green' training informs employees about environmental issues. It also informs employees about how important their environmental activities are for the entire organisation. As a result, the more training the organisation offers, the more requests employees recognize and, consequently, the 'green' goal can become more difficult.

At the same time, providing employees with 'green' training increases their perception that they possess the knowledge and skills to achieve such difficult goals. Therefore, we posit that such challenges – being complemented by a sense of possessing the competencies needed for their achievement – enhance employees' motivation, which increases their commitment and efforts to achieve more environmental improvement goals. Consequently, such increased employee effort leads to the adoption of broader and on-going engagement in voluntary OCBE-O and OCBE-I. Therefore, the following hypothesis is developed:

**Hypothesis 2:** *Increased 'green' goal difficulty positively mediates the effect of green training on employees' a) Organisation-focused OCBE (OCBE-O) and b) Co-worker focused OCBE (OCBE-I).*

### 2.3. 'Green' training and employees' job satisfaction

### 2.3.1. Job satisfaction

Lu et al. (2005) defined job satisfaction as a positive response proportionate to the degree to which an individual enjoys his or her job.

Two contrasting perspectives have emerged from previous studies about the effect of training on employees' job satisfaction, highlighting that training can be conducive to positive as well as negative effects. On the one hand, some studies have argued that training is positively associated with job satisfaction (Petrescu et al., 2008). Indeed, organisations which invest in training for developing employees' competencies support employees in perceiving an adequate fit between their competencies and the work requirements and, thereby, in developing a more satisfying view of their work (Vansteenkiste et al., 2005; Kristof-Brown et al., 2005; Watson et al., 2018). On the other hand, some studies have argued that training can have negative impacts on employees' job satisfaction, since training often interferes with task completion (Topcic et al., 2015), increases time pressure and work overload (Oppenauer and Van De Voorde, 2018). Moreover, training can increase performance expectations (Topcic et al., 2015) triggering stressful experiences for the employees (Kuvaas et al., 2012).

In the case of 'green' training, we argue that 'green' training raises the level of employees' job satisfaction. First, 'green' training gives employees the possibility to enhance their competences on environmental topics. This improved condition positively affects employees' cognitive judgement about the job, because individuals feel that the organization is providing them with the environmental knowledge and skills required by the EM tasks they perform (Dhanesh, 2014). Additionally, 'green' training can generate positive spill-over into the private life of employees (Klade et al., 2013). Thanks to 'green' training, employees have the opportunity to learn about the relevance of their daily work behaviours for the environment. As a result, they are also likely to become more aware of the relevance of their personal behaviours outside the workplace. We, therefore, expect that employees participating in 'green' training feel that the organisation is providing them with 'green' personal resources, which can be useful not only when they are at work but

in their private life as well. Consequently, they become more satisfied with their job (Munster and Schrader, 2011). Therefore, the following hypothesis is developed:

**Hypothesis 3:** *'Green' training has a positive effect on employees' job satisfaction.*

### *2.3.2. The mediating role of 'green' Perceived Organisational Support (POS)*

Notwithstanding the direct relationship between 'green' training and job satisfaction, we argue that this effect is partially mediated by 'green' Perceived Organizational Support (POS), i.e, the degree to which employees believe that the organisation values their contributions and demonstrates concern for their well-being at work (Eisenberger et al., 1986).

Referring to the relationship between training and POS, Kurtessis et al. (2015) affirmed that training opportunities are the most indicative HRM practice for increasing POS, because they communicate an investment in the employee. Training is indeed a process in which the organisation spends time and effort in teaching something new; thus, the employees are aware of the support that the employer gives them and, therefore, their POS increases. Increasing employees' POS means increasing the expectation that in the future the organisation will help them when needed, thereby enhancing job satisfaction, as already empirically demonstrated (Kurtessis et al., 2015).

In terms of environmentally related literature, Lamm et al. (2014) stated that POS toward the environment reflects employees' specific beliefs regarding how much the organisation values their contributions toward sustainability. In their definition, the efforts of employees are in terms of environmental improvements. However, the definition of Lamm et al. (2014) lacks the second contribution of the definition by Eisenberger et al. (1986), namely, the organisation demonstrates concern for employees' well-being at work. Therefore, leveraging Eisenberger et al. (1986) and Lamm et al. (2014), we conceptualise 'green' POS as the specific employee beliefs concerned with how much the organisation values their contributions toward sustainability and how the organisation demonstrates concern for their environmental values at work.

Adapting the original organisational support theory to environmental issues, we argue, first, that 'green' training generates 'green' POS, as it is likely to be seen by employees as an investment made by the

organisation in their knowledge and skills for environmental protection. Second, according to the literature on organisational support, we argue that employees who feel that the organisation is supporting their environmental efforts are more likely to be satisfied with their jobs (Kurtessis et al., 2015). In addition, according to the emerging literature on the effects of sustainability programs on employees (for a review, see Gond et al., 2017), we argue that employees who perceive their organisation's commitment towards environmental sustainability are more likely to develop higher job satisfaction (El Akremi et al., 2015).

**Hypothesis 4:** *'Green' perceived organisational support positively mediates the effect of 'green' training on employees' job satisfaction.*

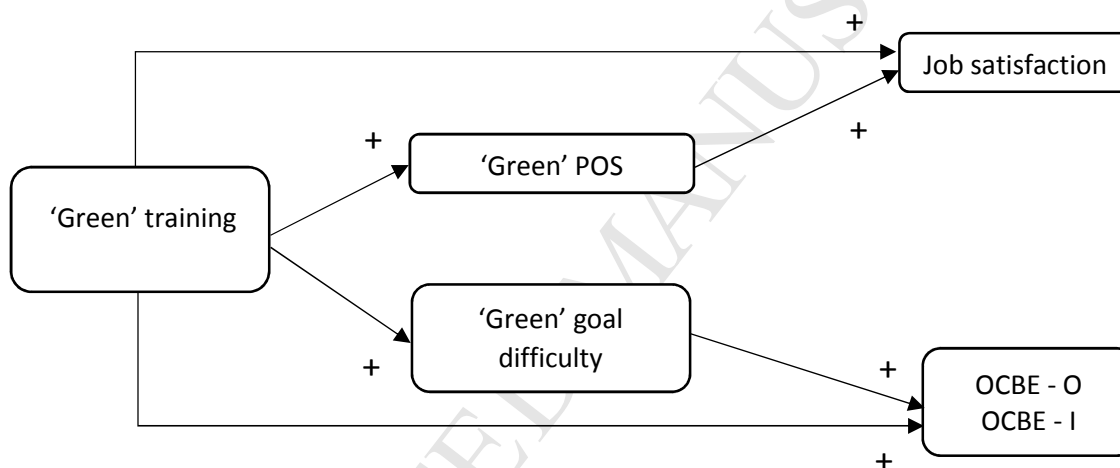


Figure 1. Theoretical model and developed hypotheses

### 3. Methodology

#### 3.1. Research context

To test our hypotheses, we collected data by means of a survey that was conducted within a large Italian hospital in northeast Italy in 2013. The hospital has four different facilities and provides healthcare services to a population of approximately 360,000 individuals. During the years before the research, the hospital developed a set of environmental objectives and programs related to different environmental issues (e.g., waste management, energy efficiency, etc.). 'Green' training programs were implemented to inform

hospital professionals about environmental issues and activities, and to enable them to contribute to the hospital's 'green' goals.

This research design – which follows the suggestions of influential methodological publications in the HRM field (Sanders et al., 2013) and was employed in several studies on the effects of 'green' HRM on employees' attitudes and behaviours (Dumont et al., 2017; Pellegrini et al., 2018) – is intended to reduce the effects of non-controllable contextual factors on our context-sensitive investigated variables.

### 3.2. Questionnaire and measures

The questionnaire, which is available upon request, was structured in four main sections focused on a) employee attitudes; b) employee behaviours; c) 'green' training; and d) general information on the respondent. All constructs were measured by adapting previously validated scales from the literature (Table 1).

Table 1. Main constructs, items and scales

CONSTRUCT	SOURCE	ITEMS	SCALE
Organization-focused OCBEs (OCBE - O)	Paillet and Boiral (2012)	OCBE-O 1: 'I actively participate in sustainability events organized in and/or by the organization' OCBE-O 2: 'I stay informed on environmental activities in the organization' OCBE-O 3: 'I undertake environmental actions that contribute positively to the image of the organization' OCBE-O 4: 'I volunteer for projects, initiatives or events that address environmental issues in and/or by the organization'	Five-point scale ranging from (1) "Not at all" to (5) "At every available opportunity".
Co-worker focused OCBEs (OCBE - I)	Paillet and Boiral (2012)	OCBE-I 1: 'I help other colleagues in taking into account the environment' OCBE-I 2: 'I encourage other colleagues in adopting environmental conscious behaviours' OCBE-I 3: 'I encourage other colleagues in expressing their ideas about sustainability'	
Job satisfaction	Michigan Organizational Assessment Questionnaire	SAT 1: 'All in all I am satisfied with my job' SAT 2: 'In general, I like working in this organization'	Seven-point Linkert-scale ranging from (1) "Strongly disagree" to (7) "Strongly agree".
'Green' training	Alfes et al (2012)	TRAIN 1: 'I am provided with sufficient opportunities for training and development in environmental management' TRAIN 2: 'I receive the environmental training I	



		need to reduce the environmental impact of my job' TRAIN 3: 'Environmental training is given a high priority in this organization'	
'Green' goal difficulty	Wright (2004)	DIFF 1: 'A high degree of skill and know-how is necessary to do my environmental tasks well' DIFF 2: 'My environmental duties are quite demanding day after day'	
'Green' Perceived Organizational Support (POS)	Short POS scale by Eisenberger et al. (1986)	POS 1: 'The organization values my contribution to environmental management' POS 2: 'The organization really cares about my environmental goals and values' POS 3: 'The organization cares about my opinions on sustainability' POS 4: 'The organization takes pride in my accomplishments on environmental issues at work'	

Additionally, the following control variables were included, in line with prior research: (i) gender and age; (ii) the tenure and the type of profession; (iii) positive affectivity, to control the dispositional tendency of individuals to focus on the positive aspects of themselves and their environment measured using a four-item scale from Agho et al. (1992) (Cronbach's alpha of 0.68); (iv) a categorical variable to consider the four different locations where the questionnaires were collected.

### 3.3. Data collection

The survey was administered by the first author during four visits to the hospital facilities between September 2013 and November 2013. The printed questionnaire was distributed to 260 professionals working at the hospital and participating in a planned, mandatory training programme. During each training session, the first author had the opportunity to explain the objective of the research and the content of the questionnaire, to clarify that data were confidential and analysed in aggregate form, and to respond to questions from the audience. The professionals were then given a 30-minute time slot to compile the questionnaire. Of the 260 administered questionnaires, all were returned resulting in a 100% response rate. In summary, 72 questionnaires were collected in the first facility, 50 in the second, 62 in the third, and 76 in the fourth facility.

As shown in Figure 2 the final sample was composed primarily of female respondents (81%). The average age in the sample was 46.2 for women and 50.69 for men. The average tenure in the

profession was 19 years and the average organisational tenure was 14 years. Among the surveyed professionals, we identified eight different groups: nurses, doctors, nursing coordinators, heads of clinical units, clinical technicians, technical staff, administrative staff, and socio-health workers.

*Please insert Figure 2. Sex, age, organizational tenure and professional tenure of the survey respondents*

### 3.4. Data analysis

Data analysis started with a principal component analysis with orthogonal rotation (varimax) to test the unidimensionality of each separate variable with Kaiser's criterion of the eigenvalue greater than one. Then, the amount of explained variance was computed and the reliability of the scales was tested by Cronbach's alpha to confirm good internal correlation of each item in the scale. Finally, to test the proposed hypotheses, linear regression analyses were performed following the mediation analysis approach proposed by Baron and Kenny (1986). All analyses were executed using STATA 12.

### 3.5. Common Method Variance

Since our data were obtained from a single respondent, the potential for Common Method Variance (CMV) may be a concern (Podsakoff et al., 2003). To reduce CMV a set of precautions were used both throughout the design and administration of the questionnaire and after the data were gathered. Following (Ping, 2004), to design of the questionnaire, six preliminary interviews were carried out with doctors, nurses and administrative staff on EM, "green" training and their environmental activities at work. That information was used to adapt the content of the questions and to improve the phrasing of items. Finally, the doctor and the team in charge of environmental management reviewed all items. Moreover, during the administration of the survey, confidentiality was guaranteed to respondents, emphasizing that there were

no correct or incorrect answers, and by asking them to provide independent and honest answers. After the collection of data, the Harman's single-factor test was conducted to verify the presence of CMV. The test showed that there were 12 factors and that the highest variance accounted for the first rotated factor was 18%, indicating that the CMV is not a major concern in our study (Harman, 1967).

#### 4. Results

This section reports the results of the empirical analyses. Table 2 shows the explained variance and the Cronbach's alpha of each construct. All values are at acceptable level, in line with commonly used threshold (Nunnally, 1978). Table 3 shows the mean, standard deviation and pairwise correlation of the variables analysed in our model.

*Table 2. Explained variance and Cronbach's alpha of the of the construct-related variables*

CONSTRUCT	EXPLAINED VARIANCE	CRONBACH'S ALPHA
'GREEN' TRAINING (TRAIN)	0.80	0.87
'GREEN' GOAL DIFFICULTY (DIFFIC)	0.82	0.78
'GREEN' PERCEIVED ORGANIZATIONAL SUPPORT (POS)	0.62	0.80
JOB SATISFACTION (SAT)	0.76	0.69
ORGANIZATION-FOCUSED OCBE (OCBE – O)	0.65	0.81
CO-WORKER FOCUSED OCBE (OCBE – I)	0.74	0.82

*Table 3. Means, standard deviations and correlations of the construct-related variables*

	MEAN	STD. DEV.	TRAIN	DIFFIC	POS	SAT	OCBE - O	OCBE - I
TRAIN	5.083	1.316						

<b>DIFFIC</b>	5.038	1.348	0.292 ***				
<b>POS</b>	4.281	1.347	0.445 ***	0.147 *			
<b>SAT</b>	5.568	1.223	0.362 ***	0.060 †	0.306 ***		
<b>OCBE – O</b>	3.519	0.850	0.422 ***	0.310 ***	0.281 ***	0.244 *	
<b>OCBE – I</b>	3.199	0.956	0.256 ***	0.215 ***	0.363 ***	0.106 ***	0.565 ***
† P<0.1; *P<0.05; **P<0.01; ***P<0.001							

As stated before, to test the hypotheses, we performed linear regression analyses following the approach proposed by Baron and Kenny (1986). In the following paragraph, we present the results of the first set of hypotheses related to ‘green’ training and OCBEs (Hypothesis 1a/b, Hypothesis 2a/b). Then, we disclose the results pertaining to the second set of hypotheses related to ‘green’ training and job satisfaction (Hypothesis 3, Hypothesis 4). All results are then discussed in Section 5 ‘Discussion and conclusions’.

According to the results of model 1 (Table 4. Results of the regression analysis on OCBEs

	<b>MODEL 1</b>				<b>MODEL 2</b>			
	<b>OCBE-O</b>				<b>OCBE-I</b>			
	Coeff.	Robust SE	SE	P>t	Coeff.	Robust SE	SE	P>t
<b>AGE</b>	-0.002	0.009		0.771	0.002	0.012		0.870
<b>SEX</b>	-0.138	0.196		0.482	-0.084	0.238		0.723
<b>TENURE</b>	0.013	0.007		0.069	0.021	0.010		0.046
<b>AFFECT</b>	0.113	0.060		0.061	0.112	0.080		0.162
<b>PROF 1</b>	-0.347	0.309		0.263	-0.015	0.415		0.971
<b>PROF 2</b>	0.056	0.418		0.892	0.014	0.482		0.977
<b>PROF 3</b>	-0.458	0.378		0.228	0.147	0.480		0.760
<b>PROF 4</b>	0.084	0.482		0.861	-0.237	0.581		0.684
<b>PROF 5</b>	-0.445	0.356		0.213	-0.208	0.441		0.637
<b>PROF 6</b>	-0.563	0.509		0.270	0.030	0.612		0.960

<b>PROF 7</b>	-0.127	0.356	0.722	0.383	0.435	0.380
<b>SITE 1</b>	0.025	0.153	0.868	0.112	0.182	0.537
<b>SITE 2</b>	-0.288	0.171	0.094	0.023	0.192	0.904
<b>SITE 3</b>	-0.167	0.150	0.267	-0.197	0.208	0.345
<b>TRAIN</b>	0.239	0.047	0.000	0.136	0.055	0.016
<b>CONSTANT</b>	1.964	0.648	0.003	1.396	0.903	0.124
<b>R2</b>		0.228			0.131	

), 'green' training positively and significantly affects OCBE-O ( $b = 0.239$ ;  $p < 0.001$ ). Indeed, hypothesis 1a is confirmed. Similarly, hypothesis 1b about the positive influence of 'green' training on OCBE-I is supported ( $b = 0.136$ ;  $p < 0.05$ ).

Table 4. Results of the regression analysis on OCBEs

	MODEL 1			MODEL 2			
	OCBE-O			OCBE-I			
	Coeff.	Robust SE	P>t	Coeff.	Robust SE	SE	P>t
<b>AGE</b>	-0.002	0.009	0.771	0.002	0.012		0.870
<b>SEX</b>	-0.138	0.196	0.482	-0.084	0.238		0.723
<b>TENURE</b>	0.013	0.007	0.069	0.021	0.010		0.046
<b>AFFECT</b>	0.113	0.060	0.061	0.112	0.080		0.162
<b>PROF 1</b>	-0.347	0.309	0.263	-0.015	0.415		0.971
<b>PROF 2</b>	0.056	0.418	0.892	0.014	0.482		0.977
<b>PROF 3</b>	-0.458	0.378	0.228	0.147	0.480		0.760
<b>PROF 4</b>	0.084	0.482	0.861	-0.237	0.581		0.684
<b>PROF 5</b>	-0.445	0.356	0.213	-0.208	0.441		0.637
<b>PROF 6</b>	-0.563	0.509	0.270	0.030	0.612		0.960
<b>PROF 7</b>	-0.127	0.356	0.722	0.383	0.435		0.380

<b>SITE 1</b>	0.025	0.153	0.868	0.112	0.182	0.537
<b>SITE 2</b>	-0.288	0.171	0.094	0.023	0.192	0.904
<b>SITE 3</b>	-0.167	0.150	0.267	-0.197	0.208	0.345
<b>TRAIN</b>	0.239	0.047	0.000	0.136	0.055	0.016
<b>CONSTANT</b>	1.964	0.648	0.003	1.396	0.903	0.124
<b>R<sup>2</sup></b>		0.228			0.131	

To test the mediation of 'green' goal difficulty, in model 3, we analysed the direct relationship between 'green' training and 'green' goal difficulty (the mediator) to verify its level of significance. Then, we analysed the relationship of 'green' goal difficulty with OCBE-O (model 4) and with OCBE-I (model 6). Finally, we tested the relationship between 'green' goal difficulty and OCBE-O (model 5) and OCBE-I (model 7), while controlling for 'green' training.

The results of the data analysis according to models 3-7 (Table 5. Results of the mediation analysis on 'green' goal difficulty (OCBE-O)

	<b>MODEL 3</b>			<b>MODEL 4</b>			<b>MODEL 5</b>		
	<b>DIFFIC</b>			<b>OCBE-O</b>			<b>OCBE-O</b>		
	Coeff.	Robust SE	P>t	Coeff.	Robust SE	P>t	Coeff.	Robust SE	P>t
<b>AGE</b>	0.020	0.018	0.243	-0.004	0.011	0.624	-0.006	0.009	0.515
<b>SEX</b>	-0.138	0.289	0.703	-0.239	0.180	0.232	-0.113	0.191	0.552
<b>TENURE</b>	-0.026	0.014	0.057	0.017	0.009	0.033	0.016	0.007	0.023
<b>AFFECT</b>	0.316	0.098	0.004	0.122	0.062	0.053	0.065	0.059	0.274
<b>PROF 1</b>	1.170	0.482	0.055	-0.534	0.309	0.015	-0.518	0.275	0.061
<b>PROF 2</b>	0.924	0.659	0.225	-0.013	0.418	0.973	-0.066	0.381	0.863
<b>PROF 3</b>	1.175	0.578	0.085	-0.558	0.374	0.069	-0.637	0.346	0.067
<b>PROF 4</b>	-0.250	0.748	0.750	0.306	0.471	0.519	0.134	0.488	0.784
<b>PROF 5</b>	0.822	0.568	0.248	-0.553	0.360	0.055	-0.558	0.323	0.086
<b>PROF 6</b>	-0.536	0.721	0.457	-0.434	0.455	0.386	-0.487	0.499	0.331

<b>PROF 7</b>	0.677	0.549	0.285	-0.364	0.344	0.177	-0.222	0.322	0.491
<b>SITE 1</b>	0.111	0.258	0.646	-0.047	0.162	0.765	0.009	0.147	0.949
<b>SITE 2</b>	-0.716	0.286	0.017	-0.319	0.181	0.090	-0.203	0.181	0.264
<b>SITE 3</b>	0.032	0.254	0.889	-0.210	0.161	0.174	-0.176	0.145	0.227
<b>TRAIN</b>	0.155	0.077	0.054				0.214	0.048	0.000
<b>DIFFIC</b>				0.181	0.048	0.000	0.146	0.043	0.001
<b>CONST.</b>	1.356	1.055	0.240	2.412	0.641	0.000	1.807	0.622	0.004
<b>R2</b>		0.233			0.187			0.272	

Table 6. Results of the mediation analysis on 'green' goal difficulty (OCBE-I)

	<b>MODEL 6</b>				<b>MODEL 7</b>			
	<b>OCBE-I</b>				<b>OCBE-I</b>			
	Coeff.	Robust	SE	P>t	Coeff.	Robust	SE	P>t
<b>AGE</b>	0.001	0.013	0.890	-0.000	.001	0.982		
<b>SEX</b>	-0.140	0.210	0.559	-0.069	0.234	0.766		
<b>TENURE</b>	0.024	0.010	0.024	0.024	0.010	0.024		
<b>AFFECT</b>	0.107	0.073	0.173	0.074	0.079	0.346		
<b>PROF 1</b>	-0.153	0.361	0.688	-0.149	0.368	0.686		
<b>PROF 2</b>	-0.075	0.488	0.872	-0.104	0.444	0.814		
<b>PROF 3</b>	0.039	0.436	0.931	-0.010	0.436	0.980		
<b>PROF 4</b>	-0.127	0.549	0.832	-0.221	0.570	0.698		
<b>PROF 5</b>	-0.302	0.420	0.469	-0.309	0.395	0.434		
<b>PROF 6</b>	0.120	0.531	0.845	0.088	0.600	0.883		
<b>PROF 7</b>	0.193	0.402	0.625	0.302	0.383	0.432		
<b>SITE 1</b>	0.071	0.189	0.694	0.101	0.179	0.571		
<b>SITE 2</b>	0.041	0.211	0.839	0.122	0.202	0.545		
<b>SITE 3</b>	-0.228	0.187	0.276	-0.207	0.205	0.314		

<b>TRAIN</b>				0.119	0.055	0.033
<b>DIFFIC</b>	0.134	0.056	0.015	0.113	0.055	0.040
<b>CONSTANT</b>	1.518	0.748	0.060	1.245	0.847	0.143
<b>R2</b>		0.131			0.153	

and **Error! Reference source not found.**) confirm that 'green' goal difficulty partially mediates the effect of 'green' training on OCBE-O (Hypothesis 2a) and OCBE-I (Hypothesis 2b). Therefore, hypothesis 2a and hypothesis 2b are confirmed.

Table 5. Results of the mediation analysis on 'green' goal difficulty (OCBE-O)

	MODEL 3			MODEL 4			MODEL 5		
	DIFFIC			OCBE-O			OCBE-O		
	Coeff.	Robust SE	P>t	Coeff.	Robust SE	P>t	Coeff.	Robust SE	P>t
<b>AGE</b>	0.020	0.018	0.243	-0.004	0.011	0.624	-0.006	0.009	0.515
<b>SEX</b>	-0.138	0.289	0.703	-0.239	0.180	0.232	-0.113	0.191	0.552
<b>TENURE</b>	-0.026	0.014	0.057	0.017	0.009	0.033	0.016	0.007	0.023
<b>AFFECT</b>	0.316	0.098	0.004	0.122	0.062	0.053	0.065	0.059	0.274
<b>PROF 1</b>	1.170	0.482	0.055	-0.534	0.309	0.015	-0.518	0.275	0.061
<b>PROF 2</b>	0.924	0.659	0.225	-0.013	0.418	0.973	-0.066	0.381	0.863
<b>PROF 3</b>	1.175	0.578	0.085	-0.558	0.374	0.069	-0.637	0.346	0.067
<b>PROF 4</b>	-0.250	0.748	0.750	0.306	0.471	0.519	0.134	0.488	0.784
<b>PROF 5</b>	0.822	0.568	0.248	-0.553	0.360	0.055	-0.558	0.323	0.086
<b>PROF 6</b>	-0.536	0.721	0.457	-0.434	0.455	0.386	-0.487	0.499	0.331
<b>PROF 7</b>	0.677	0.549	0.285	-0.364	0.344	0.177	-0.222	0.322	0.491
<b>SITE 1</b>	0.111	0.258	0.646	-0.047	0.162	0.765	0.009	0.147	0.949
<b>SITE 2</b>	-0.716	0.286	0.017	-0.319	0.181	0.090	-0.203	0.181	0.264
<b>SITE 3</b>	0.032	0.254	0.889	-0.210	0.161	0.174	-0.176	0.145	0.227



<b>TRAIN</b>	0.155	0.077	0.054				0.214	0.048	0.000
<b>DIFFIC</b>				0.181	0.048	0.000	0.146	0.043	0.001
<b>CONST.</b>	1.356	1.055	0.240	2.412	0.641	0.000	1.807	0.622	0.004
<b>R<sup>2</sup></b>		0.233			0.187			0.272	

Table 6. Results of the mediation analysis on 'green' goal difficulty (OCBE-I)

	<b>MODEL 6</b>				<b>MODEL 7</b>			
	<b>OCBE-I</b>				<b>OCBE-I</b>			
	Coeff.	Robust	SE	P>t	Coeff.	Robust	SE	P>t
<b>AGE</b>	0.001	0.013		0.890	-0.000	.001		0.982
<b>SEX</b>	-0.140	0.210		0.559	-0.069	0.234		0.766
<b>TENURE</b>	0.024	0.010		0.024	0.024	0.010		0.024
<b>AFFECT</b>	0.107	0.073		0.173	0.074	0.079		0.346
<b>PROF 1</b>	-0.153	0.361		0.688	-0.149	0.368		0.686
<b>PROF 2</b>	-0.075	0.488		0.872	-0.104	0.444		0.814
<b>PROF 3</b>	0.039	0.436		0.931	-0.010	0.436		0.980
<b>PROF 4</b>	-0.127	0.549		0.832	-0.221	0.570		0.698
<b>PROF 5</b>	-0.302	0.420		0.469	-0.309	0.395		0.434
<b>PROF 6</b>	0.120	0.531		0.845	0.088	0.600		0.883
<b>PROF 7</b>	0.193	0.402		0.625	0.302	0.383		0.432
<b>SITE 1</b>	0.071	0.189		0.694	0.101	0.179		0.571
<b>SITE 2</b>	0.041	0.211		0.839	0.122	0.202		0.545
<b>SITE 3</b>	-0.228	0.187		0.276	-0.207	0.205		0.314
<b>TRAIN</b>					0.119	0.055		0.033
<b>DIFFIC</b>	0.134	0.056		0.015	0.113	0.055		0.040
<b>CONSTANT</b>	1.518	0.748		0.060	1.245	0.847		0.143
<b>R<sup>2</sup></b>		0.131				0.153		

Then, we analysed the second part of the theoretical model to test the effect of 'green' training on job satisfaction. Accordingly, in model 8, we used job satisfaction as the dependent variable. As shown in Table 7. Results of the regression analysis on job satisfaction

<b>MODEL 8</b>				
	<b>JOB SATISFACTION</b>			
	Coeff.	Robust	SE	P>t
<b>AGE</b>	0.012	0.015		0.428
<b>SEX</b>	-0.458	0.274		0.097
<b>TENURE</b>	-0.015	0.013		0.275
<b>AFFECT</b>	0.337	0.105		0.002
<b>PROF 1</b>	-0.443	0.288		0.127
<b>PROF 2</b>	-0.380	0.461		0.411
<b>PROF 3</b>	-0.082	0.331		0.803
<b>PROF 4</b>	0.338	0.372		0.365
<b>PROF 5</b>	-0.429	0.405		0.291
<b>PROF 6</b>	-0.613	0.533		0.251
<b>PROF 7</b>	-0.405	0.375		0.282
<b>SITE 1</b>	-0.060	0.228		0.793
<b>SITE 2</b>	0.059	0.233		0.798
<b>SITE 3</b>	0.227	0.240		0.346
<b>TRAIN</b>	0.308	0.063		0.000
<b>CONSTANT</b>	2.349	0.995		0.019
<b>R2</b>		0.272		

, the results support Hypothesis 3, confirming a positive and significant relationship between 'green' training and job satisfaction ( $b = 0.308$ ,  $p < 0.001$ ).

Table 7. Results of the regression analysis on job satisfaction

<b>MODEL 8</b>				
	<b>JOB SATISFACTION</b>			
	Coeff.	Robust	SE	P>t
<b>AGE</b>	0.012	0.015		0.428
<b>SEX</b>	-0.458	0.274		0.097
<b>TENURE</b>	-0.015	0.013		0.275
<b>AFFECT</b>	0.337	0.105		0.002
<b>PROF 1</b>	-0.443	0.288		0.127
<b>PROF 2</b>	-0.380	0.461		0.411
<b>PROF 3</b>	-0.082	0.331		0.803
<b>PROF 4</b>	0.338	0.372		0.365
<b>PROF 5</b>	-0.429	0.405		0.291
<b>PROF 6</b>	-0.613	0.533		0.251
<b>PROF 7</b>	-0.405	0.375		0.282
<b>SITE 1</b>	-0.060	0.228		0.793
<b>SITE 2</b>	0.059	0.233		0.798
<b>SITE 3</b>	0.227	0.240		0.346
<b>TRAIN</b>	0.308	0.063		0.000
<b>CONSTANT</b>	2.349	0.995		0.019
<b>R<sup>2</sup></b>		0.272		

Finally, in the last two models (models 9-10), we tested the mediating effects of 'green' POS in the relationship between 'green' training and job satisfaction. We found that 'green' POS partially mediates the positive effects that 'green' training has on healthcare professionals' job satisfaction (Table 8. Results of the mediation analysis on 'green' POS

	<b>MODEL 9</b>	<b>MODEL 10</b>

	POS				JOB SATISFACTION			
	Coeff.	Robust	SE	P>t	Coeff.	Robust	SE	P>t
<b>AGE</b>	0.007	0.016		0.660	0.011	0.015		0.443
<b>SEX</b>	-0.294	0.233		0.209	-0.416	0.279		0.137
<b>TENURE</b>	0.007	0.014		0.603	-0.016	0.013		0.237
<b>AFFECT</b>	0.145	0.093		0.123	0.314	0.100		0.002
<b>PROF 1</b>	0.222	0.606		0.714	-0.481	0.337		0.155
<b>PROF 2</b>	1.130	0.737		0.127	-0.547	0.491		0.267
<b>PROF 3</b>	0.536	0.673		0.427	-0.157	0.380		0.679
<b>PROF 4</b>	1.157	0.898		0.199	0.174	0.435		0.689
<b>PROF 5</b>	0.093	0.626		0.881	-0.448	0.437		0.307
<b>PROF 6</b>	-0.450	0.826		0.586	-0.551	0.511		0.282
<b>PROF 7</b>	0.877	0.647		0.177	-0.534	0.405		0.190
<b>SITE 1</b>	-0.008	0.259		0.973	-0.069	0.223		0.756
<b>SITE 2</b>	-0.390	0.264		0.142	0.114	0.236		0.630
<b>SITE 3</b>	0.635	0.234		0.007	0.139	0.243		0.568
<b>TRAIN</b>	0.302	0.081		0.000	0.265	0.069		0.000
<b>POS</b>					0.139	0.063		0.029
<b>CONSTANT</b>	1.059	1.132		0.351	2.220	0.995		0.027
<b>R2</b>		0.237				0.289		

). Therefore, Hypothesis 4 is confirmed.

Table 8. Results of the mediation analysis on 'green' POS

	MODEL 9				MODEL 10			
	POS				JOB SATISFACTION			
	Coeff.	Robust	SE	P>t	Coeff.	Robust	SE	P>t

AGE	0.007	0.016	0.660	0.011	0.015	0.443
SEX	-0.294	0.233	0.209	-0.416	0.279	0.137
TENURE	0.007	0.014	0.603	-0.016	0.013	0.237
AFFECT	0.145	0.093	0.123	0.314	0.100	0.002
PROF 1	0.222	0.606	0.714	-0.481	0.337	0.155
PROF 2	1.130	0.737	0.127	-0.547	0.491	0.267
PROF 3	0.536	0.673	0.427	-0.157	0.380	0.679
PROF 4	1.157	0.898	0.199	0.174	0.435	0.689
PROF 5	0.093	0.626	0.881	-0.448	0.437	0.307
PROF 6	-0.450	0.826	0.586	-0.551	0.511	0.282
PROF 7	0.877	0.647	0.177	-0.534	0.405	0.190
SITE 1	-0.008	0.259	0.973	-0.069	0.223	0.756
SITE 2	-0.390	0.264	0.142	0.114	0.236	0.630
SITE 3	0.635	0.234	0.007	0.139	0.243	0.568
TRAIN	0.302	0.081	0.000	0.265	0.069	0.000
POS				0.139	0.063	0.029
CONSTANT	1.059	1.132	0.351	2.220	0.995	0.027
R <sup>2</sup>		0.237			0.289	

Overall, our findings confirm all the developed hypotheses. Indeed, it emerged that 'green' training could support the environmental sustainability of the hospital, as it was found to be positively associated with healthcare professionals' OCBE-O and OCBE-I (Hypothesis 1 a/b), with the mediation of 'green' goal difficulty (Hypothesis 2 a/b). In addition, it emerged that 'green' training could also enhance the positive work experience of healthcare professionals, as 'green' training was positively associated with their job satisfaction (Hypothesis 3), with the mediation of 'green' POS (Hypothesis 4). **Error! Reference source not**

**found.9** shows a summary of the direct, indirect, and total effects that ‘green’ training has on OCBE-O, OCBE-I, and job satisfaction.

*Table 9. Decomposition of ‘green’ training’s effects on OCBO-E, OCBE-I and job satisfaction*

	DIRECT EFFECT	MEDIATED EFFECT	TOTAL EFFECT
<b>‘GREEN’ TRAINING → OCBE-O</b>	0.214	0.023	0.239
<b>‘GREEN’ TRAINING → OCBE-I</b>	0.119	0.017	0.136
<b>‘GREEN’ TRAINING → JOB SATISFACTION</b>	0.265	0.042	0.308

## 5. Discussion and conclusions

This study developed an original theoretical model and documented evidence on the positive effects of ‘green’ training on employees’ OCBEs and job satisfaction and on their mediating mechanisms.

Delving into the results, the analysis of Hypothesis 1 indicates that when environmental awareness and competencies increase in the organisation, employees’ engagement in OCBEs will also increase. Indeed, healthcare professionals’ voluntary go the extra-mile in EM and adopt new ‘green’ behaviours directed toward the organisation (OCBE-O) and toward other colleagues (OCBE-I). This result is consistent with previous studies by Saeed et al. (2018) and Pham et al. (2019), who found that ‘green’ training is the ‘green’ HRM practice with the largest effect on employees’ pro-environmental behaviour. Indeed, our results add value to existing contributions about the role of ‘green’ training in promoting employees’ voluntary behaviours toward the environment in different industries (e.g., manufacturing, retail, and hospitality) and countries (e.g., China and Vietnam), by demonstrating this relationship also holds true in healthcare where gaining professionals’ buy-in is often considered very problematic (Seifert, 2018). Indeed, our findings confirm that ‘green’ training is a key ‘green’ HRM practice to support the successful implementation of EM in hospitals (e.g., Ryan-Fogarty et al., 2016; Pinzone et al., 2016; Pasqualini Blass et al., 2017).

The findings related to Hypothesis 2 show that 'green' goal difficulty positively affects the extent to which employees perform both types of OCBEs, as it partially mediates the effects of 'green' training. In line with goal setting theory, the perception of a more difficult goal, coupled with new 'green' competencies, activates healthcare professionals' motivation, which, in turn, results in a more extensive engagement in OCBEs. This relationship, which has been demonstrated on discretionary behaviours not related to EM (Taylor, 2013), is in line with previous findings on the performance of professionals, who were found to be motivated by new and difficult work-related challenges (Leicht and Fennel, 2001).

The results of the Hypothesis 3 analysis support the prediction that 'green' training is positively related to employees' job satisfaction. We interpret this result considering two on-going literature streams. The first stream is about the spill-over into private life of employee exposure to sustainability issues at work (Klade et al., 2013), while the second stream shows that training increases employees' job satisfaction when it provides personal resources that can be applied in different contexts (Watson et al., 2018). We argue that this is the case in 'green' training in hospitals. Indeed, healthcare professionals exposed to 'green' training become more aware of the relevance of their pro-environmental behaviours in the hospital as well as outside the workplace, and feel that 'green' training is providing them with 'green' personal resources that they can apply both at work and in their private domain (Munster and Schrader, 2011; Süßbauer and Schäfer, 2018).

In this line of reasoning, we also interpret our findings related to Hypothesis 4 that 'green' POS positively mediates the effect of 'green' training on employees' job satisfaction. Indeed, healthcare professionals perceive 'green' training as a form of organisational investment in their personal growth and development and, as an organisational aid for their environment-related duties, they become happier in their jobs. Our results confirm the findings in several studies (e.g., El Akremi et al., 2015; Lamm et al., 2014), indicating that 'green' POS is a key mechanism in the relationship between sustainability-related organisational practices and employee attitudes such as job satisfaction (Gond et al., 2017).

All in all, this article makes several significant contributions to the ongoing debate on the outcomes of 'green' HRM on employees' pro-environmental behaviours and their well-being, which are of high relevance for theory and practice on cleaner production and sustainability. In the following paragraphs, the main contributions to theory and implications for sustainability managers are crystallized. Finally, the main limitations of this research are pointed out as well as proposals for follow-up investigations.

### 5.1. Implications for theory on cleaner production and sustainability

First, our findings contribute to the current literature on 'green' training and the 'behavioural perspective' in research on corporate greening (e.g., Paillè et al., 2014; Pinzone et al., 2016), by providing evidence of the positive link between 'green' training and OCBs, which have received inadequate empirical research attention so far. Specifically, our results expand current understanding on how 'green' training contributes to the successful implementation of either cleaner technologies or new environmental practices (e.g., Teixeira et al., 2016; Diana et al., 2017) by fostering employees' discretionary pro-environmental behaviours that go beyond what is prescribed in their job description or required by formal environmental procedures and management systems.

In addition, the literature has been almost silent on the process through which 'green' training influences employees' OCBs. In this respect, Renwick et al. (2016) called for, 'comprehensive evaluation studies on how green training may help to change staff behaviours' (p. 121) toward environmental performance. Our findings shed light on this relationship by providing original insights into the role played by 'green' goal difficulty in motivating employees' OCBs. Specifically, when employee 'green' goal is not challenging enough, 'green' training is likely to result in a more limited engagement in OCBs, such as "quick win" pro-environmental behaviours that are basic and easier to perform (Graves and Sarkis, 2018), while a more proactive and frequent engagement in OCBs requiring higher levels of internal motivation and effort (e.g., volunteering for environmental improvement projects), is likely to be missed. Indeed, our results contribute to expanding extant knowledge on the interplay between organisational and individual determinants of



discretionary extra-role behaviours toward the environment (e.g., Norton et al., 2015; Wesselink et al., 2017).

Finally, the results of our research also contribute to the on-going debate on the effects of 'green' HRM practices on employees' well-being, as recently referenced by Ren et al. (2017). The existence of potential 'win-win' or 'trade-off' effects between environmental and social aspects stemming from 'green' HRM practices have been recognised in recent literature (e.g., Carollo and Guerci, 2018). However, until now, they have been rarely tested in the same empirical study. Our results support the expectation that 'green' training is positively related to higher levels of job satisfaction, which is an important indicator of employees' well-being and an important part of the social sustainability of the organisation. Furthermore, the findings indicate that 'green' POS partially mediates the effects of 'green' training on job satisfaction. Accordingly, our results add to the current knowledge empirical evidence that supports the argument that 'green' training can generate both favourable environmental and social outcomes in organisations, enriching the insights provided by Tramarico et al. (2017). Indeed, 'green' training can be a powerful HRM practice for engaging and empowering employees in terms of positive EM visions and actions.

## 5.2. Implications for practice on cleaner production and sustainability

This study has significant implications for sustainability managers willing to shape a 'win-win' organisational context for improving both environmental performance through employees' OCBs and social sustainability through employees' job satisfaction. These managers are, indeed, recommended to invest in 'green' training. In making this investment, they should underline challenging environmental goals and link them to individuals' 'green' behaviours. To this end, managers can leverage on new training methods and tools based on challenges, such as employee contests and serious games (e.g., Stanitsas et al., 2018).

Managers should also make clear to employees the positive effect of this training on their satisfaction with their job. Sustainability managers should communicate their 'green' training activities, highlighting that this organisational effort is aimed at improving the environmental sustainability of the organisation *and* at supporting the work lives of employees. Sustainability managers are also recommended to design their 'green' training in such a way that provides employees with environmental competencies that they can

apply at work but that also have a positive spill over into their private lives. For instance, waste management training sessions might include recycling practices that can be adopted at home as well. Similarly, training on energy efficiency can be linked to sustainable energy consumption behaviours in the employees' private domain.

Finally, following our model, sustainability managers should assess progress achieved by means of 'green' training by monitoring not only the final expected outcomes (i.e., OCBEs and job satisfaction) but also the level of intermediate outcomes (i.e., 'green' goal difficulty and 'green' POS), for example, through continuous workplace surveys.

### 5.3. Limitations, directions for future research and conclusions

The findings of this research should be interpreted considering the limitations of the study and in the context of the proposals for future research as follows.

The first point of concern is the generalizability of results. Since we used data from employees of a single organization – even if from four subsidiary hospitals - future studies covering more organizations would be valuable. Moreover, since the healthcare sector and its operative functioning is context-dependent, future studies covering other Italian regions and other countries would be relevant to analyse differences and analogies. Additionally, future research covering other industries would be useful.

A second limitation pertains the sample size. Although, the sample size was adequate to test the model, a larger sample could be useful to strengthen the results. Therefore, we suggest that future studies can test our hypotheses on larger samples by using more sophisticated statistical techniques.

Third, in this research, we used a cross-sectional design and, thus, we cannot offer definitive conclusions on causation. In future, longitudinal research, gathering the data at different points in time, would be useful to amplify upon causality relationships.

Fourth, since we used data from a single respondent, CMV might be a concern. Although we used several strategies to mitigate the bias and the Harman's test indicated there were no major concerns, future research relying multiple informants would be valuable. (e.g. OCBEs can be rated by supervisors).

Finally, we suggest that extending our model in several ways can provide valuable avenues for future research. Future research could include other 'green' HRM practices. While this research was focused upon 'green' training, future research could extend the model by testing the effects of other 'green' HRM practices (e.g., motivation-enhancing practices and opportunity-enhancing practices) or a 'green' HRM system consisting in a bundle of mutually reinforcing practices.

Additionally, future research could extend the range of outcomes investigated. While this research addressed OCBEs and job satisfaction, future studies could investigate other types of 'green' work behaviour (e.g., in role behaviours, counterproductive behaviours). Future studies could also extend the range of social sustainability related outcomes; for example, in the field of employee well-being, research could be focussed upon different dimensions of well-being, such as health well-being or relational well-being (Grant et al, 2007).

Future research could also be based upon a multi-level approach. While this research was based upon the individual level, future studies could be extended to the team and organizational levels to provide a more comprehensive view of antecedents, processes and outcomes across different levels of analysis.

In conclusion, despite the limitations this study – as any study - has, it advances our knowledge on the effects of 'green' training and provides evidence-based recommendations to sustainability managers willing to leverage 'green' HRM practices to improve the sustainability of their organisation.

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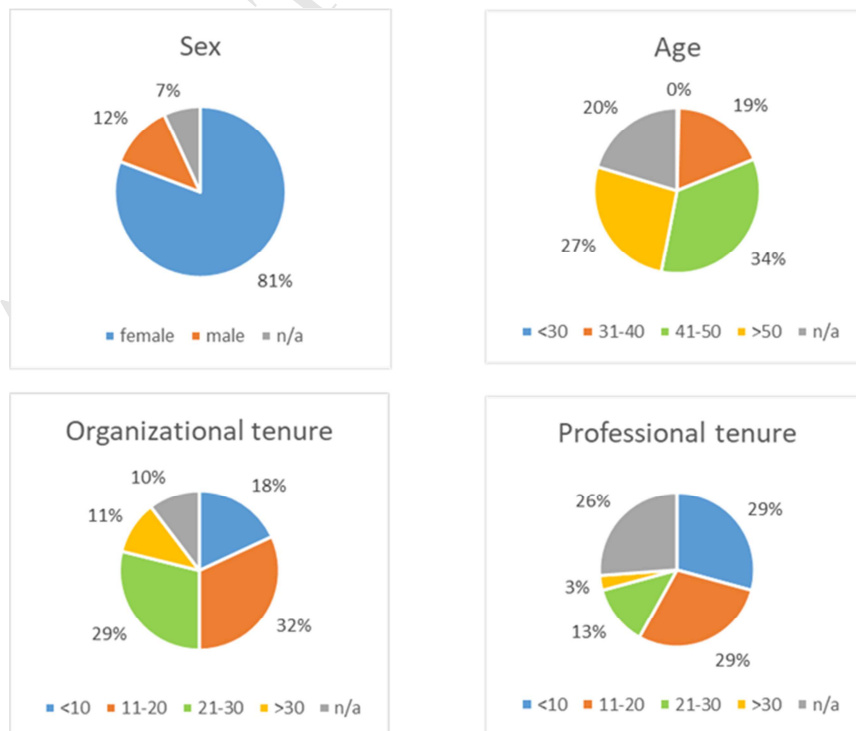
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Figure 2. Sex, age, organizational tenure and professional tenure of the survey respondents



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## Highlights

- Green training positively affects employees' pro-environmental behaviours and job satisfaction
- Green goal difficulty partially mediates the effects of green training on pro-environmental behaviours
- Green perceived organizational support partially mediates the effects of green training on job satisfaction
- Green training is an effective practice to gain professionals' buy-in in environmental activities
- Managers are recommended to use green training to improve their organizations' sustainability