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**Employee Involvement Climate and Climate Strength: A study of employee attitudes and organizational effectiveness in UK hospitals**

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**Employee Involvement Climate and Climate Strength:**

**A study of employee attitudes and organizational effectiveness in UK**

**hospitals**

## Employee Involvement climate and climate strength:

### A study of employee attitudes and organizational effectiveness in UK hospitals

#### ABSTRACT

**Purpose** – Addressing the continuing productivity challenge the purpose of this paper is to analyze data from the National Health Service (NHS) on employee involvement (EI) in order to gain critical insights into how employees' shared perception of employee involvement in organizational decision-making (labelled EI climate) might address two persistent issues: how to enhance positive staff attitudes *and* improve organizational performance. In doing so we respond to recent calls for more multilevel research and extend previous research on EI climate by attending to both EI climate level and EI climate strength.

**Design/methodology/approach** – Data from 4702 employees nested in 33 UK hospitals was used to test the moderating role of EI climate strength in the (a) cross-level EI climate level-employee attitudes relationship and in the (b) organizational-level EI climate-organizational effectiveness relationship.

**Findings** – The results of the multilevel analyses showed that EI climate level was positively associated with individual-level employee attitudes (i.e. job satisfaction, affective commitment). Further the results of the hierarchical regression analysis and the ordinal logistic regression analysis showed that EI climate level was also positively related to organizational effectiveness (i.e. lower outpatient waiting times; performance quality). In addition, both analyses demonstrated the cross-level moderating role of EI climate strength in that the positive impact of EI climate level on employee attitudes and organizational effectiveness was more marked in the presence of a strong compared to a weak EI climate.

**Practical implications** – By creating and maintaining a positive and strong climate for involvement hospital managers can tackle the productivity challenge that UK hospitals and health care institutions more generally are currently facing while improving the attitudes of their employees who are critical in the transformative process and ultimately underpin organizational success.

**Originality/value** – This is the first study which provides evidence that a favorable *and* consistent collective recognition of EI opportunities by staff enhances both employee attitudes and hospital performance. Results highlight the role of EI climate strength and underscore its importance in future research and practice.

**Keywords** – EI climate, climate strength, hospital performance, employee attitudes

## INTRODUCTION

One of the major challenges facing current managers is to increase organizational productivity (Sparrow and Otake-Ebede, 2016). This challenge and the search for the true drivers of quality and productivity which has dominated the management agenda in the international health care context for over a decade, is critical for a high-quality, sustainable health and care system and organizational survival (Appleby, Galea and Murray, 2014; West, Lyubovnikova, Eckert, and Denis, 2014). Yet, progress in meeting these challenges has been modest and little in the fundamentals of health care delivery performance has changed. England's National Health Service (NHS) which is the focus of the present study has not been immune to this issue. It faces the triple challenge of (i) increasing quality of care of patients and citizens; (ii) finding billions of pounds of productivity gains; and (iii) making the government's reforms work (Appleby *et al.*, 2014). Hence the productivity crisis in the health care sector remains unresolved or, as in the case of the NHS, has even worsened (Appleby, Ham, Imison, & Jennings, 2010). Moreover, increased workloads, staff shortages, poor systems and organizational changes contribute to reduced morale among health care professionals (e.g., Dixon-Woods *et al.*, 2013); this is problematic because staff morale and wellbeing are deemed critical to the delivery of high-quality, safe healthcare (e.g., Buttigieg, West, and Dawson, 2011). Scholars and managers alike are thus seeking the holy grail in terms of how to engage and succeed in the productivity challenge yet maintain employee motivation and morale.

Employee involvement has been advocated as a key tool to improve staff attitudes and organizational effectiveness (e.g., Huselid, 1995; Lawler, 1996; Richardson and Vandenberg, 2005; West and Dawson, 2012; West *et al.*, 2014). **We define employee involvement here as employees' opportunities to contribute their**

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2  
3 views and actively participate in organizational decision-making. Previous research  
4  
5 carried out in health service organizations in the NHS has shown that staff  
6  
7 engagement was positively related to care quality and financial performance (based  
8  
9 on independent audit body ratings), staff health and well-being, patient satisfaction  
10  
11 and negatively related to patient mortality, staff absenteeism and stress (Dixon-Woods  
12  
13 et al., 2014; West and Dawson, 2012) with the engagement in decision-making  
14  
15 component of EI being the strongest predictor of outcomes. Yet, this research neglects  
16  
17 organizational theory according to which climate mediates the relationship between  
18  
19 the work environment and work-related attitudes and behaviors (Campbell, Dunnette,  
20  
21 Ijwier, and Weick, 1970; Kopelman, Brief, and Guzzo, 1990). Kopelman et al.'s  
22  
23 (1990) model proposes a link between climate and organizational productivity, via  
24  
25 cognitive and affective states leading to desired organizational behaviors of  
26  
27 individuals. Moreover, consistent with Kehoe and Wright (2013; p. 370), higher-level  
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29 performance outcomes necessitate consistency in employees' perceptions of and  
30  
31 reactions to HR practices (e.g. EI practices) at higher level or aggregate performance  
32  
33 effects which ultimately contribute to organizational effectiveness would fail to  
34  
35 emerge. We thus analyse data from the NHS staff involvement survey carried out in  
36  
37 2002 and 2003 respectively in order to gain critical insights into how employees'  
38  
39 shared perception of employee involvement (EI) in organizational decision-making  
40  
41 (labelled EI climate) might address two persistent issues: how to increase staff  
42  
43 attitudes and improve organizational performance. Specifically, building on principles  
44  
45 of need fulfilment (Miller & Monge; Riordan et al., 2005) and social exchange theory  
46  
47 (Blau, 1983) we propose and examine that a positive EI climate which helps staff to  
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49 fulfil their needs (e.g. need for autonomy) and which signals that staff are dealt with  
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51 equitably contributes to more positive staff attitudes (i.e. job satisfaction, affective  
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3 commitment) and greater organizational effectiveness (i.e. performance quality,  
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5 waiting times).  
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7  
8 Moreover, our research makes a unique contribution to the literature by  
9  
10 attending to both level (defined as the average or most typical way that employees  
11  
12 perceive EI climate), and strength (defined as the degree of organization-wide  
13  
14 agreement regarding EI climate level) of EI climate. This is important because high  
15  
16 “average” EI climate levels may hide large within-organization perceptual differences  
17  
18 (Bogaert *et al.*, 2012) and because climate strength may explain boundary conditions  
19  
20 under which climate level-outcome relationship is enhanced (González-Romá *et al.*,  
21  
22 2009). Although prior empirical research studied the positive impact of EI climates on  
23  
24 employee attitudes and organizational effectiveness (e.g., Tesluk *et al.*, 1999; Riordan  
25  
26 *et al.*, 2005), the study of climate strength in this relationship has been notably absent  
27  
28 from the existing literature. Studies on organizational climate in the health care  
29  
30 context in particular have neglected this critical distinction and have narrowly focused  
31  
32 on climate level only (Veld *et al.*, 2010). The present research addresses this gap and  
33  
34 extends previous research on EI in decision-making in the health care context by  
35  
36 studying the moderating role of EI climate strength in the EI climate level-outcome  
37  
38 relationships (Parkes, *et al.*, 2007; West and Dawson, 2012; West *et al.*, 2005).  
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40 Specifically, building on the notion of strong and intended organizational climates  
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42 (Bowen & Ostroff, 2004), we propose and examine that the positive impact of EI  
43  
44 climate level on staff attitudes and organizational effectiveness is stronger in the  
45  
46 presence of high agreement on the average EI climate where employees share a  
47  
48 common interpretation of what behaviors are desired and thus show consistent  
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50 affective and behavioral responses.  
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3 Another contribution is that rather than focusing on one level of analysis only,  
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5 we examine the impact of EI climate variables on outcomes at both individual and  
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7 organizational levels, thereby enabling us to test both organization-level relationships  
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9 and cross-level relationships between our focal variables. This approach addresses  
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11 recent calls by scholars (Renkeema *et al.*, 2016; Takeuchi, Chen, and Lepak, 2009)  
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13 for the adoption of a multilevel theoretical perspective, which considers aspects of the  
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15 organization's social system (e.g., HR practices or climate) and their cross-level  
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17 influences on individual-level employee attitudes and behaviors (Peccei & Van De  
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19 Voorde, in press; Shin, Jeong, & Bae, in press; Zhong, Wayne, & Linden, 2016)  
20  
21 Previous research has examined the role of climate strength as a cross-level moderator  
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23 (e.g., Bliese and Britt, 2001; Cole and Bedeian, 2007; Van Vianen *et al.*, 2011 for the  
24  
25 moderating role of climate strength in individual-level relationships), but to the best  
26  
27 of our knowledge our study is the first to examine whether climate strength moderates  
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29 cross-level relationships (climate level-employee attitudes relationship).  
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34 Our final contribution is that we test the relationship between EI climate and  
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36 subjective and objective outcomes critical to the health care context, using routinely  
37  
38 collected outcome data in UK hospitals. Building on Takeuchi *et al.* (2009), our  
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40 subjective outcomes include attitudinal variables (i.e., job satisfaction, affective  
41  
42 commitment), predictive of performance-related behaviors that are critical to  
43  
44 organizational effectiveness (Bowen and Ostroff, 2004). Building on West *et al.*  
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46 (2002)'s identification of hospital performance indicators, our objective outcomes  
47  
48 assess clinical and managerial effectiveness in hospitals (i.e., performance quality;  
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50 outpatient waiting times).  
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#### 54 **Staff Involvement in the NHS**

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56 The NHS is a publicly-funded body comprising semi-autonomous healthcare  
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3 providers, including hospitals and community-based providers. When the New  
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5 Labour Government was elected in 1997, a process of modernisation of the NHS with  
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7 EI and partnership as central elements began in order to address problems of skills  
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9 shortages, recruitment and retention difficulties, which seriously affected staff morale  
10  
11 and the quality and level of services provided (Department of Health, 2000). In this  
12  
13 context, the NHS taskforce defined EI as being “about making sure that staff are  
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15 involved in all decisions that affect them; from big change programmes, to the day-to-  
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17 day decisions on how services are delivered...” (Department of Health, 1999: 3).  
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21 Although a comprehensive human resource strategy with a focus on this  
22  
23 particular approach to EI was launched by the government as part of the NHS reform  
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25 process (Department of Health, 2002), its actual implementation may differ between  
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27 NHS hospitals, with top managers’ support being critical for optimal implementation  
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29 (Ostroff and Bowen, 2000) and their attitudes and actions serving as sense-making  
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31 mechanisms for all staff (Gioia and Chittipeddi, 1991). Khilji and Wang (2006)  
32  
33 identified lack of top management commitment as one reason for the gap between  
34  
35 intended and implemented HR practices. We therefore focused on differences  
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37 between NHS hospitals in studying the impact of organization-level EI climate on  
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39 employee-level attitudes and hospital outcomes. Consistent with Schneider *et al*  
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41 (2013) we define organizational climate as employees’ shared perceptions concerning  
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43 the practices, procedures, and kinds of behaviors that are supported, expected, and  
44  
45 rewarded in a setting and the meaning those imply for its members. Following the  
46  
47 current emphasis in the climate literature to focus on facet-specific rather than global  
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49 climates (Kuenzi and Schminke, 2009), we examine a climate for involvement.  
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#### 53 54 **A climate for involvement** 55 56 57 58 59 60

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3 Organizational climate refers to “shared perceptions of employees concerning  
4 the practices, procedures, and kinds of behaviors that get rewarded and supported in a  
5 particular setting” (Schneider, White, and Paul, 1998, p. 151). Not surprisingly then,  
6  
7 climate researchers have posited that organizational climate mediates the relationship  
8 between the organizational context (e.g., EI practices and programs) and responses to  
9 the context such as employee attitudes and behaviors (Schneider and Reichers, 1983).  
10  
11 In line with the argument that climate should be regarded as a construct having a  
12 particular referent (e.g., climate for service, Schneider, White, and Paul, 1998; safety  
13 climate, Zohar, and Luria, 2005), the present study takes a facet-specific approach to  
14 conceptualizing and examining climate – a climate for involvement.  
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25 The concept of EI subsumes a number of different practices for involving  
26 employees in decision-making including for example employee involvement, direct  
27 employee participation, high-commitment work practices, and employee  
28 empowerment (e.g., Summers and Hyman, 2005; Wilkinson, Gollan, Marchington,  
29 and Lewin, 2010; Zhou, 2009). Consequently, research has studied a variety of  
30 climates in this area, such as involvement climate (Riordan *et al.*, 2005)  
31 empowerment climate (Seibert, Silver and Randolph, 2004), participative climate  
32 (Tesluk, Vance and Mathieu, 1999) and voice climate (Morrison, Wheeler-Smith, and  
33 Kamdar, 2011). More generally, however, it is important to remember that the notion  
34 of EI has been approached from a variety of perspectives and that, as emphasized by  
35 Markey and Townsend (2013), there is no generally agreed definition of EI in the  
36 literature. In the absence of an agreed definition of EI therefore the present study used  
37 a conceptualization and measurement which reflects the core of EI, i.e. the extent to  
38 which an organization and its managers “give employees opportunities to become  
39 involved in their work and their employing organisation” (p. 4, Marchington,  
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3 Goodman, Wilkinson, and Ackers, 1992). by, for example, encouraging them to  
4 contribute their views and actively participate in decisions relating to their work and  
5 to the organization more generally. On this basis, therefore, we defined EI climate as  
6 employees' shared perceptions of the extent to which their employing organization  
7 (management) encourages and makes it possible for them to contribute their views  
8 and take an active role in decision-making at the workplace. Importantly, therefore,  
9 we explicitly conceptualized EI climate as a collective construct. In particular, in  
10 contrast to previous research on involvement climates (e.g., Riordan et al., 2005), our  
11 conceptualization and measurement was more directly reflective of a collective EI  
12 climate by using the referent-shift consensus model of composition (see Chan, 1998)  
13 rather than an aggregate of individual-level responses, evident from the language of  
14 the items used (reference to 'the trust' rather than 'I').

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30 How do these collective ideas about EI climate develop in organizations?  
31 Although individuals may hold different perceptions of participative climate, shared  
32 climate perceptions emerge in work or organizational units partly due to: (i) structural  
33 characteristics impacting all members of the same unit (e.g., exposure to similar  
34 participative practices), (ii) the attraction-selection-attrition process which can  
35 produce homogeneity in organizational members' perceptions, and (iii) collective  
36 sense-making as a result of social interactions among organizational members (e.g.,  
37 Bowen & Ostroff, 2004; Ostroff, Kinicki, and Tamkins, 2003; Schneider and  
38 Reichers, 1983). Shared higher-level constructs such as EI climate perceptions thus  
39 represent consensus among the lower-level units and therefore individual data is  
40 aggregated to a unit level (Chan, 1998; Dawson, González-Romá, Davis, and West,  
41 2008). The mean climate perceptions which result from the data aggregation are  
42 labelled *climate level* reflecting the average or most typical way that individuals  
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3 describe climate (e.g., EI climate) (Schneider, Salvaggio, and Subirats, 2002). In  
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5 recent years, organizational climate researchers have distinguished climate level from  
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7 another construct, labelled *climate strength*; compared to research on climate level,  
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9 few studies to date have studied climate strength and none according to our  
10  
11 knowledge has examined it as a cross-level mediator in cross-level relationships. This  
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13 dispersion construct, which is critical to our research as explained further below,  
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15 represents variability in individual-level perceptions within a unit, or the degree of  
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17 shared perception (see Chan, 1998) and therefore it is usually operationalized as the  
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19 standard deviation of individual perceptions of climate (see Schneider *et al.*, 2002). In  
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21 our study we will refer to EI climate strength to reflect the degree of organization-  
22  
23 wide agreement regarding EI climate level.  
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27 Building on Kozlowski and Klein's (2000) multilevel theory the purpose of  
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29 our study is to investigate these two EI climate constructs and their interaction in  
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31 terms of their organizational-level influences on organizational effectiveness and  
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33 cross-level influences on employee attitudes. With regard to the former, Kozlowski  
34  
35 and Klein (2000) suggest that employees' shared climate perceptions can emerge  
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37 from individual climate perceptions via bottom-up processes within organizations and  
38  
39 these organizational-level predictors can explain between-organization differences in  
40  
41 organizational effectiveness. With regard to the latter, these and other authors (e.g.,  
42  
43 Takeuchi, *et al.* 2009) suggest that the same organizational-level predictors can  
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45 explain between-organization differences in average levels of employee attitudes  
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47 (e.g., job satisfaction) due to top-down processes. Previous cross-level research has  
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49 demonstrated that attitudes can vary both within and between organizational units,  
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51 and that differences can be explained by both individual-level and unit-level  
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53 predictors (e.g., Ostroff, 1992; 1993; Takeuchi *et al.*, 2009). Similarly, the present  
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3 study investigates the extent to which individual-level job satisfaction and affective  
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5 commitment vary due to organizational-level EI climate level, EI climate strength,  
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7 and the interaction between these climate variables. We now present our specific  
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9 hypotheses and their theoretical justification.  
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### 11 **The present research**

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13 Addressing Takeuchi *et al.*'s (2009) recent call for the adoption of a multilevel  
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15 perspective, we investigate EI climate level and its interaction with EI climate  
16  
17 strength regarding their organizational-level influences on organizational  
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19 effectiveness and cross-level influences on employee attitudes (see Figure 1). Our  
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21 attitudinal variables include job satisfaction and affective commitment. These  
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23 variables are also indicative of employee well-being (Peccei, 2004) and are measured  
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25 at the individual level given that they are an important outcome in their own right  
26  
27 (Guest and Woodrow, 2012). Our hospital outcomes include performance quality  
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29 ratings and outpatient waiting times as indicators of clinical and managerial  
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31 effectiveness in hospitals (West *et al.*, 2002). We now present the specific hypotheses  
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33 and their theoretical justification.  
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#### 38 *EI climate level*

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41 To articulate the effect of EI climate level on individual-level attitudes we  
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43 build on two complementary explanations advanced in the literature, i.e. need  
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45 fulfilment and social exchange. First, the need satisfaction model in the EI literature  
46  
47 (Miller and Monge, 1986; Riordan *et al.*, 2005), suggests that a EI climate  
48  
49 meaningfully improves the work environment and helps to fulfil important higher-  
50  
51 order needs of individuals. This need fulfilment, in turn, positively impacts their  
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53 attitudes. Specifically, to the extent that the organization is perceived to provide  
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55 opportunities for EI in decision-making, employees should experience greater scope  
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3 for increased autonomy, responsibility, recognition, and social contact through  
4 interactions, all welcomed intrinsic rewards that have been found to enhance job  
5 satisfaction (Humphrey *et al.*, 2007). Similarly, to the extent that the organization is  
6 perceived to care for employees' well-being and to value employee contributions,  
7 important socio-emotional needs including esteem, approval, and affiliation, should  
8 be fulfilled, which in turn should enhance employee's affective commitment to the  
9 organization (Lee and Peccei, 2007). Second, social exchange theory (Blau, 1964)  
10 suggests that employees who experience that their organization values and deals  
11 equitably with them are likely to reciprocate by investing psychologically in the  
12 organization and developing a stronger affective attachment (Lee and Peccei, 2007).  
13 We propose that the process of involving employees in their work and wider  
14 organization is reflective of the organization's care for employee well-being and trust  
15 in employee contributions, which are deemed critical to improve organizational  
16 performance. In return, employees respond positively in terms of increased job  
17 satisfaction and affective commitment. Similarly, building on the idea of high-trust  
18 social exchange relationships, Farndale *et al* (2011) found a positive relationship  
19 between perceptions of employee voice and organizational commitment which was  
20 mediated by trust in senior management. Additionally, other research supports the  
21 relationships of individual-level job satisfaction and commitment with EI climate  
22 (Tesluk *et al.*, 1999) and 'concern for employees' climate (Takeuchi *et al.*, 2009).  
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48 Hence we predict:

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50 *Hypothesis 1.* EI climate level is positively related to employee-level  
51 attitudes (i.e. job satisfaction, affective commitment).  
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54 To articulate the effect of EI climate level on organizational-level outcomes  
55 we build on the key premise that climates shape collective employee behaviors over  
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3 time, which eventually influence organizational performance (Ostroff and Bowen,  
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5 2000). These collective behaviors are fostered by the aforementioned processes that  
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7 lead to the emergence of organizational-level phenomena and “combine to emerge  
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9 into a collective effect that is greater than the simple additive effects across  
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11 individuals and that is directed toward the organization’s goals” (p. 229). Consistent  
12  
13 with the idea that facet-specific climates provide important information concerning  
14  
15 desired role behavior (e.g., How important is it to participate around here?) (Zohar  
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17 and Luria, 2005) we argue that the extent to which employees perceive hospital  
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19 management to involve employees (not only in clinical but also organizational  
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21 matters), all staff, irrespective of their socialization and membership to professional  
22  
23 groups, are more willing *and* able to collectively engage in decision-making and  
24  
25 knowledge-sharing, thereby replacing potentially destructive norms of silence (e.g.,  
26  
27 due to status differences among professional groups) with constructive feedback on  
28  
29 how to address performance problems and deviations from desired practices  
30  
31 (Ramanujam and Rousseau, 2006). This will likely improve the quality of decisions  
32  
33 and identified solutions, thus ultimately increasing performance quality in hospitals  
34  
35 and reducing waiting times. Indeed, research on acute-care hospital units shows that  
36  
37 involving employees in decision-making facilitates better use of their tacit knowledge  
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39 and skills, which improves the quality of information they bring to decision-making,  
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41 thereby reducing incidents of medication errors (Preuss, 2003). Additionally,  
42  
43 consistent with social exchange theory (Blau, 1964) and its extension to examine  
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45 phenomena at the organizational level (Piening *et al.*, 2013) we propose that to the  
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47 extent that hospitals involve employees in work-related and wider organizational  
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49 issues, a process of social exchange is initiated and employees should collectively  
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51 reciprocate management’s display of goodwill exhibiting increased task and  
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3 organizational citizenship behaviors (OCB), such as contributing to continuous  
4 improvement, job innovation and flexibility at work (Guest and Peccei, 2001).  
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7 Research on NHS hospitals provides compelling evidence that employees' shared  
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9 experiences of HR practices (including EI) are linked to hospital performance  
10 (financial performance: Piening *et al.*, 2013; patient satisfaction: Baluch *et al.*, 2013;  
11 Piening *et al.*, 2013) and that supra-individual OCB (i.e., employees' civility towards  
12 patients). Similarly, Richardson and Vandenberg (2005) found a positive link between  
13 a work-unit involvement climate and OCB directed at improving the unit. We  
14 therefore expect a positive relationship between EI climate level and performance  
15 quality more generally, and outpatient waiting times more specifically. The latter  
16 outcome is likely to ensue because of the ability and discretion of consultants, general  
17 practitioners, and nurses to jointly identify and implement the best mechanism to deal  
18 with no show-rates and reduce waiting times (e.g., via pooling of referrals,  
19 reorganization of clinics, introduction of nurse-led clinics). Hence:  
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33  
34 *Hypothesis 2:* EI climate level is positively related to organizational  
35 effectiveness (i.e. performance quality, patient waiting times)  
36  
37

### 38 *EI climate strength*

39  
40 In the literature on strategic HRM and organizational climate the concept of  
41 climate strength has been introduced as a moderator of the climate level-outcome link  
42 only in the past decade. Bowen and Ostroff (2004) assert the existence of an  
43 organizational climate reflecting the nature of the HR system (e.g., set of practices  
44 with particular strategic focus, e.g., EI) and specifically of behaviors that are  
45 supported, expected and rewarded by the organization. They further propose that the  
46 emergence of a strong and intended organizational climate from individual climate  
47 perceptions is fostered by a strong HRM system (i.e., high in distinctiveness,  
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3 consistency and consensus). Such a climate, reflective of high agreement on the  
4  
5 average strategic climate, can act as a strong situation (Mischel, 1973) where  
6  
7 employees develop shared perceptions about what strategic goals are important and  
8  
9 what behaviors are desired. Similarly, other authors proposed and found that strong  
10  
11 climates lead to consistent affective and behavioral responses, increasing the  
12  
13 predictability of organizational members' average climate responses (e.g., González-  
14  
15 Romá *et al.*, 2002; Schneider *et al.*, 2002). However, the few existing studies on EI  
16  
17 climate to date have concentrated exclusively on the climate level-outcomes link  
18  
19 (Kuenzi and Schminke, 2009), thus neglecting the relevance of climate strength.  
20  
21  
22

23 Consistent with these perspectives and our conceptualization of EI climate, we  
24  
25 propose that the strength parameter follows the extent to which EI practices reflect  
26  
27 distinctiveness, consistency, and consensus. This logic implies that a strong situation  
28  
29 is produced when EI practices are salient, visible, and understood by employees,  
30  
31 when EI behaviors displayed by staff are consistently linked to desired outcomes and  
32  
33 consistent EI messages are perceived by employees, and when the principal decision-  
34  
35 makers agree on EI practices and such practices are perceived as fair by employees.  
36  
37 These characteristics are likely to promote shared perceptions and lead to the  
38  
39 emergence of a strong EI climate. Such a climate will allow everyone to see the  
40  
41 situation similarly, induce clear expectations about desired behaviors and rewards for  
42  
43 the same, and thus contribute to consistent employee attitudes and behaviors.  
44  
45 Specifically, we may conclude that when EI climate is both positive and strong,  
46  
47 employees have a shared understanding of the EI practices in their organization, they  
48  
49 attend to consistent messages about EI practices and they are subject to similar  
50  
51 experiences with EI practices, which in turn fosters the most consistently positive  
52  
53 employee attitudes. In contrast, when employees differ in their understanding of EI  
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3 climate (low distinctiveness), when ambiguity regarding organizational EI messages  
4  
5 is high (low consistency), and when some employees experience more opportunities  
6  
7 for EI and equitable treatment than others (low consensus), the consistency of  
8  
9 employees' affective responses may suffer, even when the average EI climate is  
10  
11 positive. Hence we predict:  
12

13  
14 *Hypothesis 3.* EI climate strength moderates the relationship  
15  
16 between EI climate level and employee attitudes so that EI climate  
17  
18 level is more strongly related to employee attitudes when EI climate  
19  
20 strength is high than when it is low.  
21

22  
23 Additionally, the above proposition that organizational climate strength, by  
24  
25 virtue of reflecting a strong situation stemming from procedural coherence will  
26  
27 moderate the climate level-outcome relationship also applies to the organizational-  
28  
29 level outcomes in the present study. Bowen and Ostroff (2004) assert that in the  
30  
31 presence of a strong HR system, shared climate perceptions and collective behaviors  
32  
33 of employees emerge from individual-level processes enabling unique interactions  
34  
35 and interdependencies to operate among employees to fulfil the organization's goals.  
36  
37 Consistent with this logic, we argue that high consensus among hospital staff  
38  
39 regarding EI climate level should produce consistent performance-related and  
40  
41 citizenship behaviors (e.g. ongoing contributions to service improvement, knowledge-  
42  
43 sharing, civility toward patients, enhanced communication and collaboration; NHS  
44  
45 Employers, 2010). These consistent *and* cumulative behaviors of employees should  
46  
47 enhance the relationship between EI climate level and indicators of clinical and  
48  
49 hospital effectiveness. Thus we predict:  
50  
51

52  
53  
54 *Hypothesis 4.* EI climate strength moderates the relationship  
55  
56 between EI climate level and hospital effectiveness so that EI  
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3 climate level is more strongly related to hospital effectiveness when  
4  
5 climate strength is high than when it is low  
6

## 7 8 **METHOD**

### 9 *Sample and procedure.*

10  
11 The primary data used in this study were collected as part of a research project  
12  
13 to examine the effectiveness of management practices that encouraged staff  
14  
15 involvement in decision-making in the NHS. This study used survey data from 33  
16  
17 acute trusts (hospitals) in the UK (5 in London) which ranged in size from 514 to  
18  
19 5877 employees. This represented a 66% response rate of the 50 which were  
20  
21 originally approached, having been selected as a representative sample of all in  
22  
23 England in region, location and size. The survey data were collected over a 4-month  
24  
25 period in late 2002 and early 2003. In each trust, paper-based questionnaires were  
26  
27 distributed to 500 employees, randomly sampled by the researchers from a list of all  
28  
29 employees. The questionnaires were posted to respondents, with a postage paid  
30  
31 envelope included for return directly to the research team. This procedure resulted in a  
32  
33 sample of 4702 from the 33 hospitals and an overall response rate of 28.5%, with trust  
34  
35 response rate varying from 13.4% to 43.6%. To test the possibility that low response  
36  
37 rates in some organizations could create sampling bias we correlated the response rate  
38  
39 with both climate and climate strength (Dawson *et al.*, 2008). No significant  
40  
41 correlations emerged, suggesting that there was no systematic response bias.  
42  
43  
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47  
48 The sample was 75.8% female, 39.8% were under 40 years, 29.6% between  
49  
50 41-50 years, 23% above 50 years, and 7.6% of unknown age. The proportions for the  
51  
52 occupational groups (40.2% nurses, 6.9% medical staff, 19% administrative staff,  
53  
54 3.5% managers, 9.3% allied health professionals, 7.2% scientific/technical staff, 5.9%  
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3 ancillary staff, 8.0% staff “other”) were similar to those found in British acute trusts  
4  
5 generally (Healthcare Commission, 2004).  
6

### 7 8 *Measures*

9  
10 *EI climate level* was assessed with four items which assessed employees’  
11  
12 perceptions of opportunities for EI in decision-making in their employing hospitals.  
13  
14 These items were developed for the present study and build on our particular  
15  
16 conceptualization of EI climate: “The trust sees it is a priority to enable and encourage  
17  
18 staff to take an active role in decision-making”, “The trust sees it as a priority to  
19  
20 provide ways to enable all staff to contribute their views”, “The trust provides  
21  
22 practical support to enable staff to take an active role in decision-making” and “The  
23  
24 trust provides practical support to enable staff to contribute their views”. Employees  
25  
26 answered all items using a scale ranging from *strongly disagree* (1) to *strongly agree*  
27  
28 (5); Cronbach’s  $\alpha = .93$ .  
29  
30

31  
32 *EI climate strength* was operationalized as the within-organization, standard  
33  
34 deviation of climate ratings. We multiplied the measure by -1 before it was entered  
35  
36 into the analysis, so that a higher score represented a stronger climate (i.e., less  
37  
38 deviation) (see Dawson *et al.*, 2008).  
39

40  
41 *Job satisfaction* was assessed using six items from the Overall Job Satisfaction  
42  
43 (OJS) Questionnaire (Warr *et al.*, 1979) which addressed employees’ satisfaction with  
44  
45 various aspects of their work (e.g., job responsibility, opportunities to apply skills).  
46  
47 Employees responded on a scale ranging from *very dissatisfied* (1) to *very satisfied*  
48  
49 (5). Cronbach’s  $\alpha = .84$ .  
50

51  
52 *Affective commitment* was assessed using four items from Porter, Steers,  
53  
54 Mowday, and Boulian’s (1974) organizational commitment measure. Item examples  
55  
56 include “I feel myself to be part of this organization” and “I am proud to tell others  
57  
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59  
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3 who I work for". Employees responded on a scale ranging from *not very likely* (1) to  
4  
5 *very likely* (5). Cronbach's  $\alpha = .93$ .  
6

7 *Patient waiting times* This outcome, gathered from the Department of Health  
8  
9 website, measured the proportion of outpatients waiting longer than the national 13-  
10  
11 week target for the first consultation, during the NHS year from April 2002 to March  
12  
13 2003 (average 82%, range from 69% to 99%).  
14

15  
16 *Performance quality* This outcome is based on trust "star ratings", published in  
17  
18 2003 and indicative of a wide variety of performance indicators relating to the NHS  
19  
20 year from April 2002 to March 2003. These ratings took account of (a) a trust's  
21  
22 performance with respect to a range of indicators, including deaths after surgery,  
23  
24 waiting times, and readmission rates (b) a self-assessment return submitted to the  
25  
26 Strategic Health Authority and (c) the results from a Clinical Governance Review.  
27  
28 The star ratings were awarded to each trust on an annual basis by the Commission for  
29  
30 Health Improvement (CHI) (now the Care Quality Commission) and could range from  
31  
32 zero to three stars, with three stars being the highest performance rating.  
33  
34  
35

### 36 **Measure validation**

37  
38 We carried out confirmatory factor analyses (CFA) to investigate the validity  
39  
40 of the self-reported measures. The items for EI climate, job satisfaction and affective  
41  
42 commitment were specified to load on three separate latent factors, while the latent  
43  
44 factors were allowed to co-vary. The fit indices indicate a fairly strong fit of this  
45  
46 model to the data (CFI = .96 TLI = .94, RMSEA = .07, all being acceptable according  
47  
48 to Hu and Bentler (1999). Moreover, a significantly worse fit was shown by a single-  
49  
50 factor model. We also conducted tests of discriminant validity proposed by Fornell  
51  
52 and Larcker (1981). The shared variance between each pair of latent variables were all  
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3 smaller than 0.36, while the average variance extracted for each latent variable was at  
4  
5 least 0.48, supporting discriminant validity.  
6

### 7 8 **Data aggregation**

9  
10 In order to justify the aggregation of individual data to the organizational  
11 mean, within-unit agreement as well sufficient between-unit differences must be  
12 shown. First, we assessed within-unit agreement on EI climate using  $r_{wg(j)}$  which was  
13  
14 .79, above the .70 cutoff value (LeBreton and Senter, 2008). Then we assessed the  
15  
16 ICC (1) value, indicating the proportion of variance accounted for by organizational  
17  
18 membership, and the ICC(2) value, indicating inter-rater reliability: ICC (1) was .04  
19  
20 and ICC(2) was .85 for the EI climate scale, above the .80 cutoff value (LeBreton and  
21  
22 Senter, 2008). Together these analyses provide evidence that sufficient agreement  
23  
24 exists among members' climate perceptions to support aggregation to the trust level.  
25  
26  
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28

## 29 30 **ANALYSES AND RESULTS**

### 31 32 *Multilevel modelling analyses*

33  
34 We employed multilevel analysis to test the impact of EI climate variables on  
35 individual-level job satisfaction and affective commitment. The analyses were  
36 conducted using the Nonlinear and Linear Mixed Effects (NLME) program for R  
37 written by Pinheiro and Bates (2000). The data refer to the trust/organization-level  
38 (level 2) and the employee/individual-level (level 1) with employees nested within  
39 trusts.  
40  
41  
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47 For each of the dependent variables, we carried out four steps. In the first step,  
48 we entered level 1 control variables (sex, age, occupational group), which have been  
49 found to impact the outcome variables in prior research. In the second step, EI climate  
50 level (level 2) was entered. In the third step, EI climate strength (level 2) was included  
51  
52 in the analyses and in the fourth step, the interaction term (EI climate level × climate  
53  
54  
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3 strength) was entered. In order to avoid the problem of multicollinearity in testing  
4  
5 interaction effects (Hox, 2002), we centered the level 2 predictors (climate level,  
6  
7 climate strength) around the grand mean.  
8

9  
10 Table 1 shows means, standard deviations, and correlations between level 1  
11  
12 outcome variables and controls, and level 2 EI climate variables.  
13

14 [TABLE 1]  
15

16 Table 2 summarizes the multilevel analyses, which tested the relationship  
17  
18 between organization-level EI climate constructs and individual-level job satisfaction  
19  
20 and affective commitment.  
21

22 [TABLE 2]  
23  
24

25 Consistent with Hypothesis 1, EI climate level was significantly related to job  
26  
27 satisfaction and affective commitment such that employees who perceived greater  
28  
29 opportunities for EI in their employing hospitals reported higher levels of job  
30  
31 satisfaction and commitment. Consistent with Hypothesis 3, EI climate strength  
32  
33 moderated the relationship between EI climate level and employee-level attitudes,  
34  
35 such that the relationships increased the more employees agreed about EI climate  
36  
37 level (see Figure 2).  
38  
39

40 [FIGURE 2]  
41  
42

#### 43 *Analyses at unit-level* 44

45 Hierarchical regression analysis and ordinal logistic regression (using a logit  
46  
47 link function) were employed to test the impact of EI climate variables on outpatient  
48  
49 waiting times and performance quality (at ordinal level). The organizational-level  
50  
51 outcomes were tested for differences according to size of organisation, work pressure,  
52  
53 region, location (London vs. other), and teaching status (teaching/nonteaching). We  
54  
55 did not find any differences except for location and therefore, we included only  
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1  
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3 location as a control variable in the analyses, thereby preserving the largest number of  
4  
5 degrees of freedom possible with a relatively small sample (Dawson *et al.*, 2008).  
6

7 Table 3 shows means, standard deviations, and correlations between unit-level  
8  
9 variables.  
10

11 [TABLE 3]  
12

13  
14 Table 4 summarizes the results of the hierarchical regression analysis and  
15  
16 ordinal logistic regression. Consistent with Hypothesis 2, EI climate level was  
17  
18 significantly related to outpatient waiting times such that employees' shared  
19  
20 perceptions of greater hospital commitment to EI associated with a higher percentage  
21  
22 of outpatients waiting less than 13 weeks. However, there was no EI climate level ×  
23  
24 climate strength interaction for outpatient waiting times (see Hypothesis 4).  
25  
26 Consistent with Hypothesis 3, EI climate level was positively associated with  
27  
28 performance quality such that a one unit increase in EI climate level was associated  
29  
30 with a 5.48 increase in the ordered log odds of being in a higher level of performance  
31  
32 quality, given that all of the other variables in the model are held constant (see Step  
33  
34 2). The coefficient for EI climate level was still significant when EI climate strength  
35  
36 was included in the equation. Consistent with Hypothesis 4, we found a EI climate  
37  
38 level × climate strength interaction for performance quality. Figure 3 shows that, for  
39  
40 hospitals with low climate strength, as climate level increases, a 0\* or 1\* performance  
41  
42 outcome is more likely, whereas a 2\* or 3\* outcome is less likely. In contrast, for  
43  
44 hospitals with high climate strength, as climate level increases, a 0\* or 1\*  
45  
46 performance outcome is much less likely to occur, a 2\* outcome is more likely to  
47  
48 occur, and a 3\* particularly so when climate levels are already high. In short, with  
49  
50 high climate strength, climate level is associated with much better performance  
51  
52 outcomes, whereas with low climate strength this is not the case.  
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[TABLE 4 AND FIGURE 3]

## DISCUSSION

The current productivity challenge affects many different areas including the health care context (Appleby et al., 2014; Sparrow and Otake-Ebede, 2016). England's National Health Service (NHS) is facing a major crisis due to unprecedented financial and operational challenges caused by an increased demand for services and constrained resources (Ham, McKenna and Dunn, 2016). Performance and quality of care are suffering accordingly. Opportunities to address these challenges for example include a focus on the creation of better value. Within NHS hospitals better outcomes can be achieved while costs can be minimized "by engaging clinical teams in reducing variations and changing the way care is delivered" (Ham *et al.*, 2016). Critical for such a transformative endeavour might be staff involvement in organizational decision-making as evident from the NHS Constitution which pledges to 'engage staff in decisions that affect them and the services they provide' (p. 13; The NHS Constitution, 2015). To date however current staff involvement leaves something to be desired and little change in the fundamentals of health care delivery in general has occurred (Dromey, 2014). Moreover, researchers have recently called for further research to better understand the links between staff experience (including involvement) and performance (Dixon-Woods et al., 2014; Powell et al., 2014). The present research therefore analysed NHS trust data from a staff involvement survey collected in 2002 and 2003 in order to explore an important yet neglected construct – i.e. EI climate. Specifically, we aimed to (a) gain critical insights into whether employees' collective perception of EI in organizational decision-making (labelled EI climate level) and the extent to which these perceptions are shared (labelled EI climate strength) might address two persistent issues - how to

1  
2  
3 increase staff attitudes *and* improve organizational performance – and; (b) inform  
4  
5 future challenges.  
6

7  
8 Consistent with the proposed critical role of shared employee perceptions in  
9  
10 translating organizational practices into desired outcomes (Bowen and Ostroff, 2004)  
11  
12 we focused on EI climate rather than EI practices in predicting employee attitudes and  
13  
14 organizational outcomes and contribute to the literature on involvement climates  
15  
16 (Kuenzi and Schminke, 2009). Specifically, we found that EI climate level was  
17  
18 positively associated with individual-level job satisfaction and affective commitment.  
19  
20 This finding is consistent with previous research which found a positive link between  
21  
22 a participative climate and individual-level job satisfaction and commitment (Tesluk  
23  
24 *et al.*, 1999) and a positive link between climate for involvement and aggregated staff  
25  
26 attitudes (Riordan *et al.*, 2005) respectively. Moreover, EI climate level was  
27  
28 positively associated with outpatient waiting times and performance quality,  
29  
30 explaining 13 and 23 percent of variance respectively. **We argue that such beneficial**  
31  
32 **effects of EI climate may occur because a work environment that is collectively**  
33  
34 **perceived as providing employees with opportunities for organizational decision-**  
35  
36 **making helps fulfil higher-order needs (e.g., need for autonomy) and signals**  
37  
38 **organizations' trust in employee contributions. need fulfilment (Miller & Monge;**  
39  
40 **Riordan et al., 2005) and social exchange theory (Blau, 1983), employees respond and**  
41  
42 **reciprocate such treatment favourably with more positive employee attitudes.**  
43  
44 **Building on social exchange theory (Blau, 1983) we further argue that employees**  
45  
46 **collectively show increased performance, which manifests itself in improved**  
47  
48 **organizational effectiveness.** These findings also bear important practical implications  
49  
50 for hospitals in terms of meeting government policy targets while at the same time  
51  
52 maintaining individual employee's well-being.  
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3 Additionally, we investigated climate strength as a cross-level moderator of  
4 the aforementioned organizational-level and cross-level relationships. In doing so, we  
5 extended previous research on climates for EI (Kuenzi and Schminke, 2009) and  
6 responded to a recent call for more multi-level research in organization studies  
7 (Renkeema et al., 2016; Takeuchi *et al.*, 2009). Organizational climate researchers  
8 have recognized the moderating role of climate strength in climate level-to-outcome  
9 relationships (e.g., Schneider *et al.*, 2013), and HRM scholars have emphasized the  
10 importance of strong and strategic climates which emerge from shared perceptions  
11 and a strong HRM system in influencing HR outcomes and organizational outcomes  
12 (Bowen and Ostroff, 2004). However, neither group has tested whether the  
13 association between EI climate level and outcomes is contingent on climate strength.  
14 We tested and found that climate strength enhanced the positive relationship of EI  
15 climate level with employee attitudes and performance quality, explaining an  
16 additional 9% of variance in the latter. **Building on Bowen and Ostroff (2004), we**  
17 **argue that this enhanced positive relationship of EI climate level with employee**  
18 **attitudes occurs in the presence of a strong situation in which employees have a**  
19 **shared understanding of the EI practices in their organization (high distinctiveness),**  
20 **they attend to consistent messages about EI practices (high consistency) and they are**  
21 **subject to similar experiences with EI practices (high consensus) within their**  
22 **organization. Moreover, in such a situation of a strong EI climate, shared climate**  
23 **perceptions and collective performance-related behaviors emerge from individual-**  
24 **level processes which enhance the relationship between EI climate level and**  
25 **indicators of clinical and hospital effectiveness.**

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54 Finally, our study responded to calls for taking into account the context when  
55 examining the link between organizational practices, climate, and outcomes (Pauwe,  
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2  
3 2004; Peccei *et al.*, 2013). More pointedly, our EI climate reflects the emphasis on EI  
4  
5 in the NHS at the time of the data collection, considered critical to the delivery of the  
6  
7 NHS reform programme, and to achieving the goals of high-quality, responsive and  
8  
9 efficient patient care which are persistent problems in the present time (e.g., Appleby  
10  
11 *et al.*, 2014; Dixon-Woods *et al.*, 2013, Ellins, J. & Ham, C., 2009). Thus we  
12  
13 contextualized our research model and constructs and our findings on the impact of EI  
14  
15 climate constructs on employee attitudes and organizational effectiveness yield  
16  
17 important insights for present-day health care managers and hospitals. Additionally,  
18  
19 because of the value placed on EI by hospital staff (e.g., Rondeau and Wagner, 2006)  
20  
21 and the highly interdependent nature of work in hospitals (e.g., Ramanujam and  
22  
23 Rousseau, 2006), the perceived EI climate and its strength can be expected to have a  
24  
25 much stronger and wider effect on employee attitudes and organizational performance  
26  
27 in the present setting than in other organizational settings. Overall, the use of  
28  
29 subjective and objective outcome measures from comparable organizations within a  
30  
31 single industry (i.e. NHS hospitals) strengthens the validity of our conclusions (Van  
32  
33 de Voorde *et al.*, 2010).  
34  
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37

### 38 **Limitations and Future Research**

39  
40 Although our multilevel-multisource study using comparable organizations  
41  
42 from a single context offers a number of important advantages, it is not without its  
43  
44 limitations. First, the data from the NHS staff involvement survey was collected more  
45  
46 than ten years ago and much has happened in the UK health service since that time.  
47  
48 Nevertheless, as previously mentioned, many of the challenges facing NHS hospitals  
49  
50 and staff at the time of the data collection still exist or are even more pronounced  
51  
52 (Appleby *et al.*, 2010; 2014). Therefore, the data are still relevant and might inform  
53  
54 for example the two persistent issues as to how to increase staff attitudes and improve  
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3 organizational performance which are the focus of the present study. Second, the data  
4  
5 are cross sectional rather than longitudinal in nature so that we cannot say with  
6  
7 certainty what the direction of causality is between the factors under investigation.  
8  
9 Thus, future advances in climate strength research should carry out longitudinal  
10  
11 studies so that reverse causality is ruled out. Third, the hospital context is rather  
12  
13 unique in that the tasks involved in healthcare are very specific and the level of  
14  
15 interaction between hospital staff and patients is very high (Dawson *et al.*, 2008).  
16  
17 While similar findings may be found in other service, or non-service, organizations,  
18  
19 some of the outcome variables (e.g., outpatient waiting times) are specific to the  
20  
21 healthcare context, and may also be affected by other variables that we have not been  
22  
23 able to control for. Additionally, the specific professional roles of doctors, nurses and  
24  
25 other healthcare staff mean that for many clinically-based decisions, some level of  
26  
27 involvement from appropriately qualified staff (who may not be the managers) is  
28  
29 essential – a situation that will not generalize to all other sectors. However, scholars  
30  
31 have called for research to take the context into account when investigating the  
32  
33 relationships between organizational practices, climate, and outcomes rather than  
34  
35 assuming a universal performance context (Paauwe, 2004; Peccei *et al.*, 2013) and our  
36  
37 study addresses this call. Finally, for future research, we also encourage researchers to  
38  
39 consider (objective) measures of actual EI practices in each hospital and other types  
40  
41 of climate that might coexist within hospitals. Although our exclusive focus on  
42  
43 organizational-level EI climate is justified in light of the aforementioned research  
44  
45 context our study needs to be complemented by future research that investigates  
46  
47 multiple climate facets simultaneously and at different levels within the organization  
48  
49 (Kuenzi and Schminke, 2009) – including, for instance, a climate for safety and a  
50  
51 climate for quality (Veld *et al.*, 2011).  
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### Practical Implications

To meet the ongoing productivity challenge and maintain employee morale NHS hospitals have to follow a comprehensive approach which includes for example using constrained budgets more efficiently, implementing 'transformational change' in the way services are delivered and maximizing the contributions of front-line staff in doing so (Appleby et al., 2010; Appleby et al., 2014). Employee involvement processes are fundamental to the achievement of these objectives. The most important practical implication of this study, not only for the NHS but for health care systems in general, is that substantial benefits for both employees and organizations can be achieved from the creation and maintenance of a positive *and* strong EI climate amongst staff.

First, in the present study, a positive climate for involvement was related to better employee attitudes (i.e., job satisfaction, affective commitment) and improved organizational effectiveness (i.e. performance quality, reduced waiting times). In light of these critical outcomes, it seems imperative for hospital managers to create and maintain such a climate. However, for EI efforts to succeed, organizations and managers need to provide employees with appropriate authority and decision-making power central to their jobs (Riordan *et al.*, 2005) and encourage them to use it. Bureaucratic organizations such as hospitals (Griffin, 2006) designed to ensure hierarchical control and internal stability might perceive this power-sharing as threats to control and stability and thus might resist EI policies and practices, even if they seem to produce improvements in performance. Indeed, the Commission on Dignity in Care for older People has recently identified the top-down command and control culture in the NHS as a cause for poor care (King's Fund, 2012).

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3 Moreover, our research suggests that managerial efforts to create a positive EI  
4 climate run the risk of increasing climate level without cultivating climate strength,  
5 which fosters employee agreement regarding desired behaviors critical to achieve  
6 organization's strategic goals. As such, we propose that managers interested in  
7 obtaining maximum benefits from EI will find it advantageous to establish a strong  
8 HRM system (high in distinctiveness, consistency, and consensus) from which a  
9 strong strategic climate can emerge (Bowen and Ostroff, 2004). For example, visible  
10 top management support of EI, internal alignment among EI practices and policies  
11 (e.g., enabling *and* encouraging of EI), and perceptions of procedural fairness  
12 contribute to distinctiveness, consistency, and consensus, respectively. Hospitals are  
13 therefore strongly advised to incorporate employee climate perceptions (level and  
14 strength) into HR scorecards in order to monitor and manage employee attitudes and  
15 performance.  
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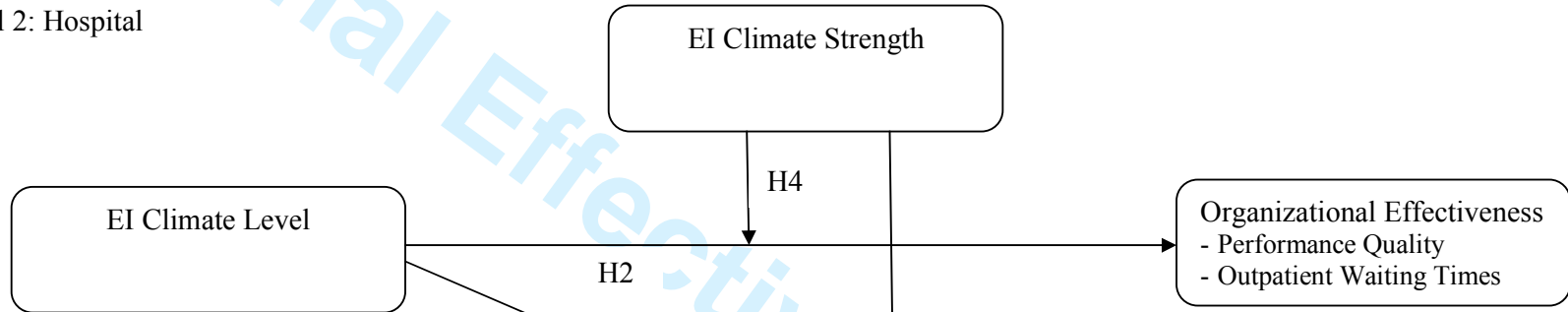
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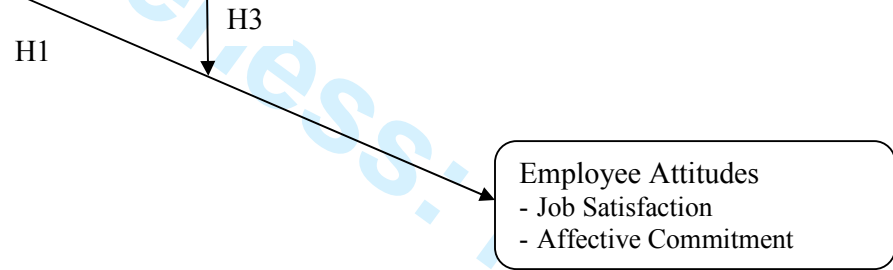
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Figure 1 Multilevel Model of EI Climate Constructs (Level and Strength), Organizational-Level Performance, and Individual-Level Attitudes

Level 2: Hospital



Level 1: Employee



**Table 1 Descriptive statistics and intercorrelations of level 1 outcome variables, level 1 controls and level 2 climate variables**

Variable	M	SD	1	2	3	4	5	6	7	8	9	10	11	12	13
1. Job Satisfaction	3.61	.77													
2. Affective Commitment	3.19	1.12	.54**												
3. Sex	.80	.40	.83**	.03											
4. Age	40.97	11.94	.04*	.04**	-.07**										
5. Occupation1	.06	.24	-.08**	-.03	-.20**	.12**									
6. Occupation2	.07	.25	-.01	-.04*	-.29**	.02	-.07**								
7. Occupation3	.40	.49	-.01	-.04*	.25**	-.08**	-.21**	.22**							
8. Occupation4	.07	.26	-.07**	-.05**	-.12**	-.04**	-.07**	-.08**	-.23**						
9. Occupation5	.03	.18	.09**	.10**	-.10**	.02	-.05**	-.05**	-.16**	-.05**					
10. Occupation6	.09	.29	.05**	-.03	.04*	-.07**	-.08**	-.09**	-.26**	-.09**	-.06**				
11. Occupation7	.19	.39	.01	-.01	.11**	.06**	-.12**	-.13**	-.40**	-.13**	-.09**	-.16**			
12. Occupation8	.04	.19	.02	.04*	-.05**	.06**	-.05**	-.05**	-.16**	-.06**	-.04**	-.06**	-.10**		
13. Climate Level	2.94	.20	.05**	.13**	-.03*	-.04*	.03	.01	-.03*	-.01	.06**	.00	-.02	.03	
14. Climate Strength	-.90	.06	.00	.04**	.01	-.01	.02	.00	.01	.00	.03*	.02	-.04**	-.03*	.24**

Notes. \*\*\*  $p < .001$ , \*\*  $p < .01$ , \*  $p < .05$ ; Dummy sex (0 = male, 1 = female)

**Table 2 Prediction of job satisfaction and affective commitment in multi-level analyses**

	Job Satisfaction					Affective Commitment				
	<i>Param</i>	<i>SE</i>	<i>df</i>	<i>t test</i>	<i>p</i>	<i>Param</i>	<i>SE</i>	<i>df</i>	<i>t test</i>	<i>p</i>
Step 2										
(Intercept)	3.332	0.095	3876	35.111	.000	2.888	0.149	3610	16.49	.000
Climate Level	0.179	0.065	30	2.734	.010	0.692	0.093	27	7.460	.000
Step 3										
(Intercept)	3.333	0.095	3876	35.092	.000	2.891	0.148	3610	19.505	.000
Climate Level	0.168	0.071	29	2.373	.025	0.677	0.094	26	7.210	.000
Climate Strength	0.069	0.231	29	0.297	.769	0.263	0.320	26	0.821	.419
Step 4										
(Intercept)	3.330	0.095	3876	35.112	.000	2.889	0.148	3610	19.500	.000
Climate Level	0.157	0.065	28	2.426	.022	0.652	0.094	25	6.922	.000
Climate Strength	0.289	0.238	28	1.216	.234	0.539	0.353	25	1.527	.139
Climate Level x Strength	2.253	0.841	28	2.680	.012	2.135	1.224	25	1.744	.093

*Notes.* Table 2 does not include a further 10 control variables, including 8 dummy variables for the occupational categories which were included in step 1 and subsequent steps of the analyses. These results are available on request from authors.

**Table 3 Descriptive statistics and intercorrelations of unit-level study variables**

Variables	M	SD	1	2	3	4	5
Outcome Variables							
1. Performance Quality	1.71	.90					
2. Waiting Times	81.64	6.66	.08				
Control Variable							
3. Location	.13	.34	.13	-.18			
Predictor Variables							
4. Climate Level	2.93	.20	.47*	.34	.10		
5. Climate Strength	.91	.06	-.13	.50**	-.14	.23	

Notes. \*\*\*  $p < .001$ , \*\*  $p < .01$ , \*  $p < .05$

**Table 4 Results of regression analyses of outpatient waiting times and performance quality on EI climate constructs**

	Outpatient Waiting Times	Performance Quality
Step 1		
Location <sup>a</sup>	-.18	.65
$R^2$	.03	.02
Step 2		
Location <sup>a</sup>	-.22	.61
Climate Level ( $\beta$ )	.36 (*)	5.48*
$R^2$	.16	.25
Step 3		
Location <sup>a</sup>	-.13	.82
Climate Level ( $\beta$ )	.30 (*)	5.36*
Climate Strength ( $\beta$ )	.45*	5.81
$R^2$	.35	.27
Step 4		
Location <sup>a</sup>	-.20	1.58
Climate Level ( $\beta$ )	.43*	2.34
Climate Strength ( $\beta$ )	.37 (*)	9.45
Climate Level x Strength ( $\beta$ )	-.23	77.26 (*)
$R^2$	.38	.36

Notes. <sup>a</sup> 0 = Other, 1 = London \*\*\*  $p < .001$ , \*\*  $p < .01$ , \*  $p < .05$ , (\*)  $p < .10$ ; Numbers in main section of table are standardized regression coefficients for outpatient waiting times and logistic regression coefficients for performance quality

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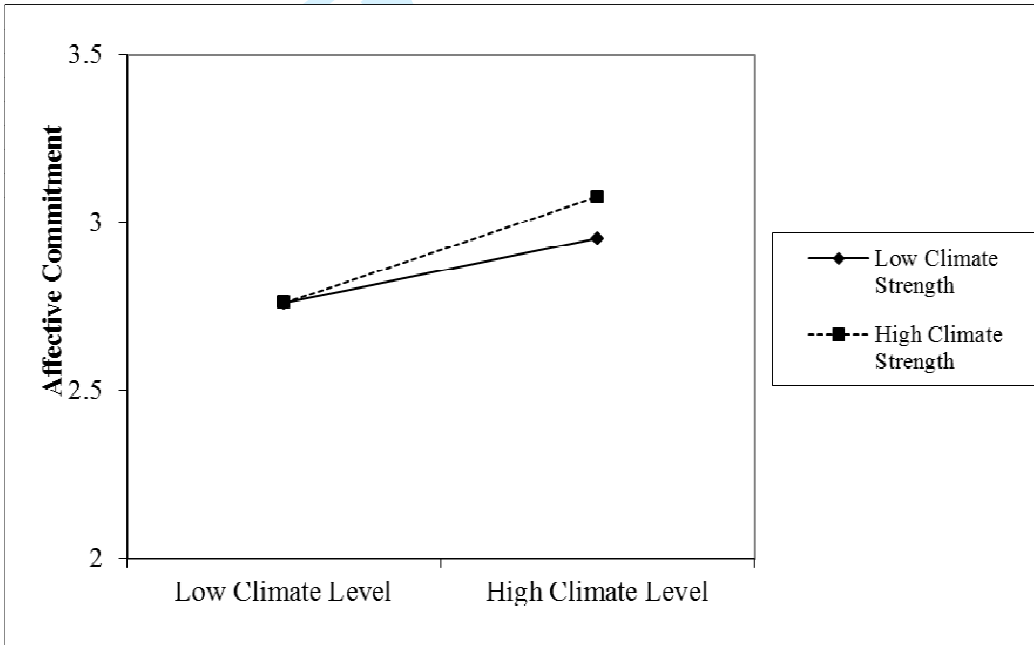
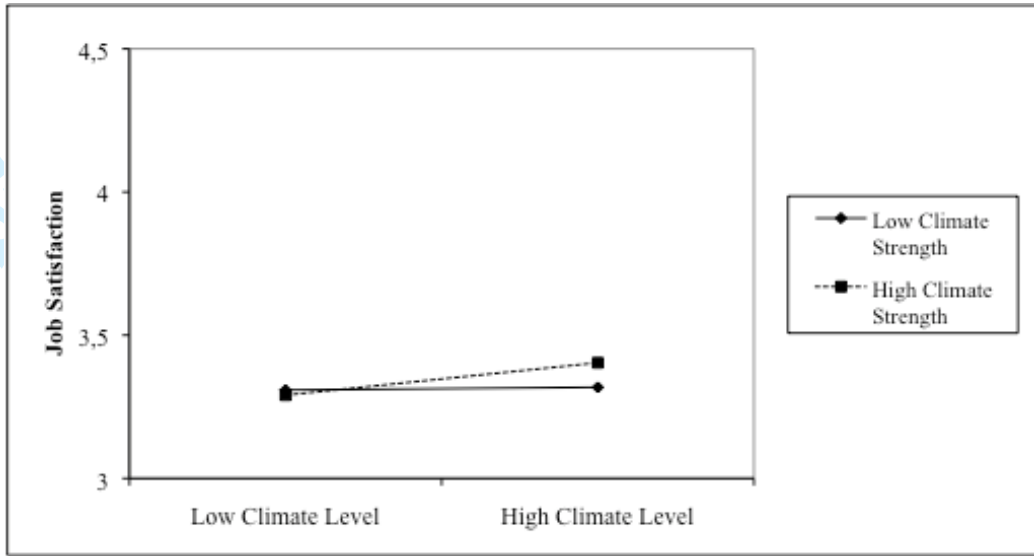
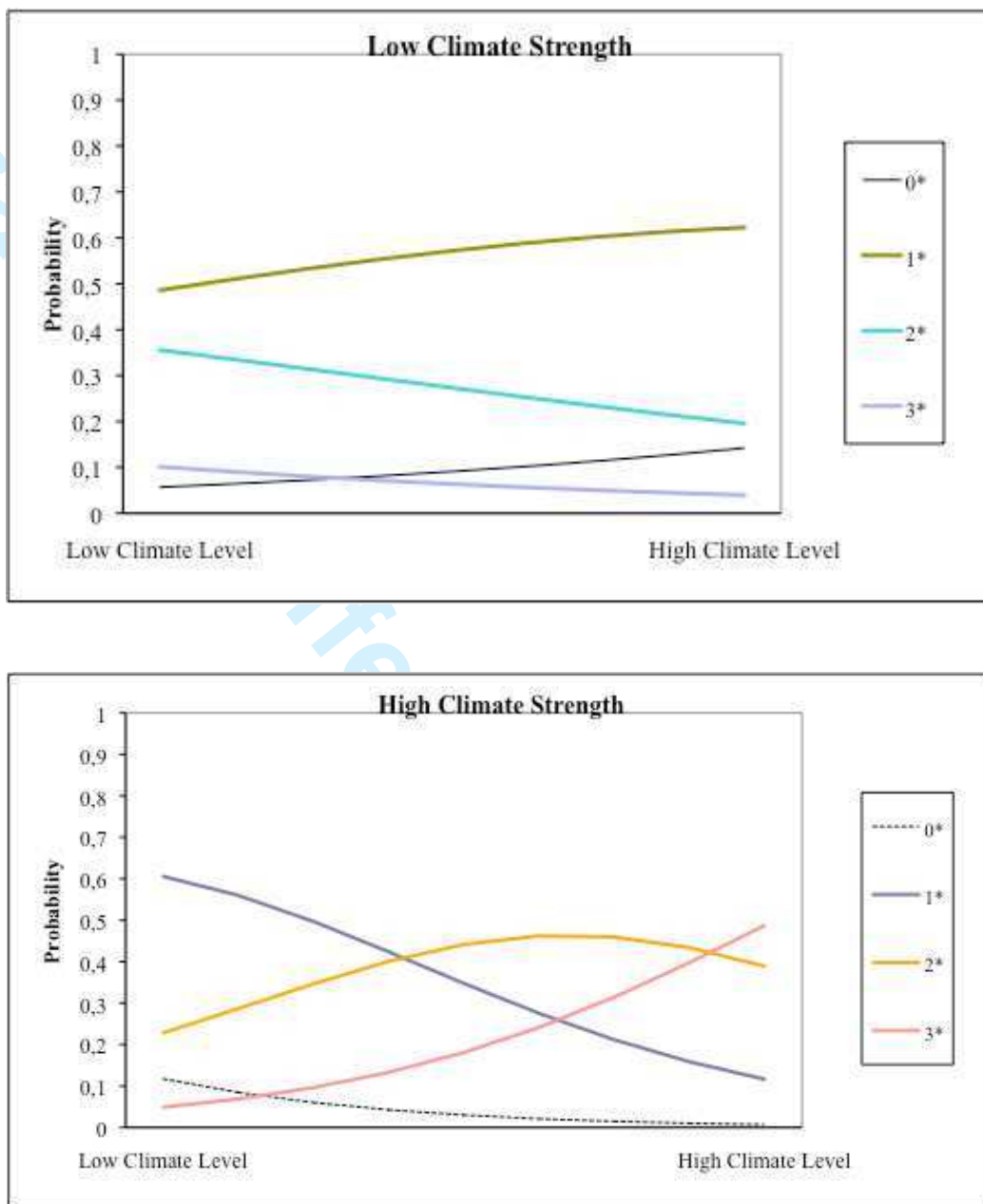


Figure 2 Interaction between EI climate level and climate strength on individual-level job satisfaction and affective commitment)





**Figure 3** Effects of EI climate level on performance quality (0\*, 1\*, 2\* or 3\* trust star ratings) for low versus high climate strength