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RESEARCH PAPER

Feeling Good Makes Us Stronger: How Team Resilience Mediates the Effect of Positive Emotions on Team Performance

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Abstract This study investigated the relationship between collective positive emotions at work and team resilience, expanding on the Broaden and Build theory of Fredrickson (Rev Gen Psychol 2:300–319, 1998; Am Psychol 56:218–226, 2001) at the collective (i.e., work teams) level of analysis. Through the aggregate scores of 1,076 employees (61 % men), grouped into 216 teams and belonging to 40 companies, five collective positive emotions were evaluated (i.e., enthusiasm, optimism, satisfaction, comfort, and relaxation) as well as team resilience. Additionally, ratings of the 216 supervisors of the teams were used to assess team performance (i.e., in- and extra-role performance). Structural equation modeling at the team level of analysis indicated that team resilience mediates the relationship between collective positive emotions and team performance, both in- and extra-role. The results highlight the importance of developing collective positive emotions to help teams to foster team resilience and improve their performance. The article concludes with practical strategies aimed at developing collective positive emotions, together with limitations and suggestions for future research.

Keywords Collective positive emotions · Team resilience · Team performance · Broaden and Build theory · Structural equation modeling

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1 Introduction

Nowadays organizations are faced with diverse risks and potentially adverse situations that threaten the prosperity of the organization and the well-being of its members (Powley 2009). In this sense, it is important to identify mechanisms which can help employees and organizations to deal with those risks, in order to achieve positive outcomes in stressful situations. In this sense, recent calls have been made to address the potential role of resilience (Kaplan et al. 2013). Previous studies proposed that by developing employees' resilience the organization will become more adaptive and successful over time (Youssef and Luthans 2005). For example, resilient employees may use an adverse experience to increase performance in subsequent tasks, and may be far more valuable to the organization in terms of their adaptability in times of subsequent change or uncertainty (Hind et al. 1996). Despite teams' relevance in the lives of organizations (Richter et al. 2006), research on resilience at work is usually carried out at the individual level of analysis, without taking into consideration the relevance of focusing on a more collective level. However, in the same way that organizations are focusing increasingly more on the performance of their teams (Gully et al. 2002), attention will also be directed toward identifying characteristics and processes that elicit positive outcomes, such as team resilience.

Although resilience is relative, emerging and changing in transaction with specific circumstances and challenges (Staudinger et al. 1993), resilience developed and displayed in a certain situation will lead to better preparation for upcoming events (Egeland et al. 1993). Therefore, establishing which variables help the development of team resilience is essential to better prepare teams to respond to future adverse situations. A considerable amount of research confirms the importance of positive emotions for the development of resilience (i.e., Cohn et al. 2009; Loh et al. 2014), although it is commonly at the individual level and evidence at the team level is lacking. Based on the Broaden-and-Build (B&B) theory of positive emotions by Fredrickson (1998, 2001), in this study we investigated the predicting role of collective positive emotions on (team) resilience. Moreover, we examine whether the relationship between collective positive emotions and team resilience stimulated positive team outcomes, such as in- and extra-role performance. Overall the present study aims to understand more about how collective positive emotions drive the within-team experience to promote favorable reactions (i.e., resilience) among teams, in order to achieve better team performance.

The novelty of this study lies in the fact that it expands on previous research in this field in several ways. First, although earlier studies have already examined positive emotions as antecedents of resilience, the analyses were at the individual level of analysis. Instead, we used aggregated scores for a team-level analysis (cf. *Referent-Shift Consensus model*; Chan 1998). Second, we include the supervisors' ratings as measures of team performance, in order to obtain a more objective evaluation of these variables and better control for method bias, thereby strengthening the validity of our results. Finally, because performance is usually considered multidimensional (Borman and Motowidlo 1993), we include the two main components of team performance (i.e., in- and extra-role) and analyze the different impacts of team resilience on each of them.

1.1 Defining Team Resilience

Within the domain of organizational psychology and management, the concept of resilience has been used to refer to relatively ordinary adaptive processes when encountering unexpected, adverse conditions that result either from large-scale disturbances or the

accumulation of several minor disruptions (Sutcliffe and Vogus 2003). Positive psychology has embraced resilience as a prime example of what is right and good about people (Luthans et al. 2006), because the main aim of positive psychology is to study "conditions and processes that contribute to the flourishing or optimal functioning of people, groups, and institutions" (Gable and Haidt 2005, p. 104). The resilience approach recognizes the need for flexibility, adaptation, and improvisation in situations characterized by change and uncertainty (Youssef and Luthans 2007). In this regard, resilience must help organizations, as well as their members and teams, to deal with adverse and stressful situations, so that they can be overcome and positive organizational outcomes can be achieved (Kaplan et al. 2013).

Resilience may be considered as much an individual characteristic as a social factor in teams or groups (Bennett et al. 2010). Consistent with social identity theory (Tajfel and Turner 1985), individuals identify with their team and internalize its values and norms, which lead to homogeneity in attitudes and behavior. Empirical evidence gives support to show that, in a similar way to individuals acting alone, individuals performing as teams tend to display somewhat regular patterns of behavior and processes (Stewart 2010). In order to provide a possible explanation for this, Totterdell (2000) stated that "team members could respond similarly to shared events and therefore end up feeling the same way" (p. 848)—in our case sharing the same level of team resilience. Thus, in our study we focus on team resilience, defined as "the capacity to bounce back from failure, setbacks, conflicts, or any other threat to well-being that they may experience" (West et al. 2009, p. 253).

1.2 Positive Emotions and Resilience

The B&B theory of positive emotions by Fredrickson (1998, 2001) offers a theoretical explanation by linking accumulated experiences of positive emotions with the development of resources for long-term success and well-being. Specifically, the B&B theory assumes that positive emotions appear to broaden people's momentary thought-action repertories and to build their enduring personal resources, such as resilience (Fredrickson et al. 2003; Tugade and Fredrickson 2004). The difference in positive emotions accounts for the ability to rebound from adversity and stress, and continue to grow. That is, momentary experiences of positive emotions produce patterns of thought that are particularly unusual, flexible, creative, and open to information (Isen 2000). Over time, these extended attitudes create lasting personal resources, ranging from physical and intellectual to social and psychological resources (Fredrickson 2001).

A significant amount of previous research supported the B&B theory, and specifically found that recurrent experiences of positive emotions are related to individual resilience. First, it has been shown that positive emotions can boost resilience (Algoe and Fredrickson 2011; Cohn et al. 2009) and that people who are particularly adept at self-generating positive emotions are more likely to be resilient (Tugade and Fredrickson 2004). Furthermore, a positive reciprocal impact of positive emotions and resilience was suggested in such a way that these momentary experiences of positive emotions can build resilience and trigger gain spirals over time, which in turn may produce greater emotional well-being (Fredrickson and Joiner 2002). These relationships were replicated in the study by Ong et al. (2006). In particular, it was shown that: (1) the adaptation benefits of positive emotions are greater when people are under stress, (2) positive emotions are more common among more resilient persons, and (3) over time, positive emotions serve to help resilient people in their ability to effectively recover from adversity.

In the organizational context, the importance of emotions is firmly established, and in recent times researchers have begun to turn their attention toward understanding the processes and outcomes of collective emotion (Rhee 2007). Three main mechanisms have been proposed to explain the emergence of (positive) collective emotion development, namely emotional contagion (Hatfield et al. 1992), emotional comparison (Schachter 1959), and empathy (Hoffman 1985). Whereas emotional contagion denotes a subconscious process of aligning each other's affective reactions, emotional comparison is a more conscious mechanism to compare one's own feelings with those expressed by others, in order to show appropriate and congruent affective reactions (Barsade 2002). In contrast, empathy is based on vicarious affect and team members show similar affectivity by deliberately assuming others' psychological points of view (Nelson et al. 2003). In accordance with these mechanisms, affective responses and emotions within team members can converge and the team can easily achieve a collective mood. Subsequently, in the same way as individuals (Fredrickson and Losada 2005), positive collective emotions are associated with an enhancement in the availability of team resources and resilience to adversity. This theoretical and empirical evidence allows us to go a step further in the B&B theory, in order to verify whether the relationship between positive emotions and resilience is replicated at the collective (team) level in the work context. We therefore expect that:

Hypothesis 1: Collective positive emotions in work teams are positively related to team resilience.

1.3 Resilience and Performance

Furthermore, we assumed that team resilience has a positive relationship with team performance because, compared to less resilient teams, teams with a high level of resilience are likely to come up with more flexible and adaptive responses to adversity, and additionally they tend to use setbacks as challenges or opportunities for growth (Carmeli et al. 2013). Thus, teams which display the ability to thrive in situations of adversity, improvise and adapt to significant change or stress, or just recover from a negative experience will be less likely to experience the potentially damaging effects of threatening situations, and thus their performance will be high (West et al. 2009).

Previous evidence revealed that team resilience is positively related with team performance (Salanova et al. 2012), as well as team cohesion, cooperation, and coordination (West et al. 2009). However these results generally reflect self-reported measures of team outcomes, whereas the current study considers performance assessed by the immediate supervisor of each team. In the literature, performance is usually divided into in-role performance (similar to task performance), defined as fulfillment of tasks that employees are expected to carry out as part of the formal job requirements, and extra-role performance (similar to contextual performance), defined as behavior that is beneficial to the organization and goes beyond formal job requirements (e.g., helping colleagues at work, making suggestions for improvement; Borman and Motowidlo 1993; Goodman and Svyantek 1999). In this study both kinds of performance are taken into account, and team resilience is expected to be related not only to in-role but also to extra-role performance. Extra-role performance is particularly relevant from a positive point of view (Avey et al. 2010). For example, extra-role behaviors often include actions that are helpful to other members of a group and enhance the flow of information between colleagues, assist in the development of interpersonal relationships, and encourage an atmosphere of teamwork and cooperation (O'Bannon and Pearce 1999). Moreover, the integration of both indicators of performance

is more likely to capture overall performance in a broader, holistic sense (Harter et al. 2003). We therefore expect that:

Hypothesis 2: Team resilience is positively associated with team performance (i.e., in- and extra-role performance).

Finally, we postulate that the relationship of positive emotions to team performance is fully mediated by resilience. In fact, in accordance with the B&B theory, positive emotions make it easier to build durable personal resources, and people who are particularly adept at self-generating positive emotions are more likely to be resilient. By contrast, no rationalization was given about the possible relationship between positive emotions and behavioral outcomes, such as work performance. Moreover, previous evidence about the thesis of "happy-productive workers" showed that (trait) psychological well-being was related to job performance, whereas (state) positive mood was not (Wright et al. 2004). Consequently, we proposed that team resilience fully mediates the relationship between collective positive emotions and team performance. That is, collective positive emotions help to build team resilience, which in turn increases team performance. Hence, we expect:

Hypothesis 3: Team resilience will mediate the relationship between collective positive emotions and team performance. Specifically, we expect collective positive emotions to be positively related to team resilience, which in turn is positively related with team performance.

2 Method

2.1 Sample and Procedure

The sample consisted of 1,076 employees nested in 216 teams from 40 companies in Spain. Twenty-seven companies belonged to the service sector (66 % of employees), 10 to industry (28.8 % of employees), and 3 to construction (5.2 % of employees). The organizational size ranged from 10 to 171 employees, with an average of 34 (SD = 30.95). The team size ranged from 2 to 38 employees, with an average of 4.99 (SD = 4.20). Sixty-one percent of the participants were male, and 91 % of them had an open-ended employment contract. The average job tenure in the organization was 6.93 years (SD = 6.71). There was three missing data on supervisor perception of in-role and extra-role teams' performance; to avoid list-wise deletion of these cases, we replaced the missing data with the series mean.

In order to collect the data, we previously contacted the key stakeholders in each organization (i.e., CEOs, Human Resources Managers, Risk-and-Safety Prevention Managers) to explain the purpose and requirements of the study. Secondly, we explained that participation in this study was voluntary, that only aggregated data would be reported, and that all identifying information would be removed. We considered employees to be members of a team when they had the same supervisor and interact frequently in order to achieve common goals or purposes, and besides they had interdependent tasks. In this sense, team supervisor can be a member of the team for practical purpose, but he/she is responsible for the productivity and actions of team. Such teams may be responsible for marketing department within a ceramic industry, a consulting on Occupational Health and Safety, or the cuisine in a restaurant. In order to recognize membership of the team, we included a team's code number on the front page of the questionnaires for each employee.

Finally, in accordance with McCarthy (1992), each employee who had been in the enterprise for at least 6 months was given a copy of the questionnaire. This is important in studying team resilience, because previous studies found that team resilience is related to important team outcomes only after teams had extensive prior interaction (West et al. 2009).

2.2 Measures

All the variables were measured with previously validated scales (see Salanova et al. 2012) and use "teams" as a reference. The full set of items for each scale data are given in Online Resource 1. Internal consistency (Cronbach's alphas) for the scales reached the cut-off point of .70 (Nunnally and Bernstein 1994).

2.2.1 Collective Positive Emotions

We selected and measured five collective emotions (i.e., enthusiasm, optimism, satisfaction, comfort, and relaxation) representing how the team had felt during the last year. These emotions were chosen in order to be representative of the three principal axes proposed by Warr (1990), that is: (1) displeased-pleased, (2) anxious-contented, and (3) depressed-enthusiastic. The respondent was asked to choose the position he or she considers the team lies in, on a Faces Scale (Kunin 1955) between two bipolar adjectives (e.g., *Unsatisfied* vs. *Satisfied*) ranging from 7 faces (from 0- frowning to 6-smiling).

2.2.2 Team Resilience

We measured team resilience with a scale composed of seven items, each of them based on Mallak's (1998) principles for implementing resilience in organizations. In contrast to previous measures of team resilience (see for example, West et al. 2009), this scale was developed specifically referring to teams in an organizational context. Items were scored on a 7-point Likert scale ranging from 0 (*never*) to 6 (*always*). A sample item could be: "In difficult situations, my team tries to look on the positive side".

2.2.3 Team Performance

The scales were adapted from the Goodman and Svyantek (1999) scales, reworded at the team level and adapted for supervisor assessment both for in-role (e.g., "The team that I supervise performs all the functions and tasks demanded by the job") and extra-role performance (e.g., "In the team that I supervise employees perform roles that are not formally required but which improve the organizational reputation"). Items were scored on a 7-point Likert scale ranging from 0 (*completely disagree*) to 6 (*completely agree*).

2.3 Data Aggregation

All variables measured have the team as the referent and, in the case of positive emotions and resilience measures, aggregated scores were employed for a team-level analysis. According to multilevel theory, these are defined as *Referent-Shift Consensus Composition* (Chan 1998), meaning that there is a shift in the referent prior to consensus assessment. To statistically demonstrate within-team agreement and between-team differences, we

Table 1 Means, standard deviations, aggregation indices, reliability, and correlations for the study variables

	M (SD)	ICC(1)	$AD_{M(J)}$	1	2	3	4	5	6	7	8	9	10	11	12
Collective enthusiasm	3.61 (.99)	.12	.93	–	.70**	.68**	.73**	.66**	.40**	–	–	−.16**	.01	−.06	−.16**
Collective optimism	3.97 (1.01)	.14	.94	.76**	–	.71**	.72**	.55**	.43**	–	–	−.13**	−.05	−.11**	−.13**
Collective satisfaction	3.92 (1.03)	.12	.97	.70**	75**	–	.74**	.55**	.43**	–	–	−.14**	−.04	−.05	−.14**
Collective comfort	4.09 (.97)	.10	.94	.78**	.75**	.77**	–	.61**	.42**	–	–	−.14**	−.03	−.07	−.16**
Collective relaxation	3.09 (1.11)	.14	.95	.68**	.56**	.57**	.64**	–	.29**	–	–	−.12**	−.02	−.06	−.12**
Team resilience	4.46 (.58)	.12	.72	.59**	.59**	.56**	.58**	.41**	(.85/ 87)	–	–	−.06	−.03	.03	−.10**
In-role performance	4.64 (.93)	–	–	.17*	.13	.17*	.20**	.07	.17*	(.86)	–	–	–	–	−.07*
Extra-role performance	4.55 (1.00)	–	–	.26**	.15*	.21**	.26**	.16*	.19**	.72**	(.79)	–	–	–	−.16**
Team size	4.99 (4.20)	–	–	−.20**	−.16*	−.16*	−.21**	−.14*	−.15*	−.06	−.22**	–	–	–	
Male/proportion male[a]	1.61 (.49)	–	–	−.13	−.18*	−.21**	−.13	−.00	−.09	−.23**	−.12	–	–	–	
Tenure/average tenure[b]	6.93 (6.71)	–	–	−.09	−.07	−.05	−.10	−.03	−.05	.00	−.08	–	–	–	
Log (team size)[c]	1.86 (.74)	–	–	−.23**	−.16*	.15*	−.24**	−.15*	−.19**	−.17*	−.23**	–	–	–	

Correlations are presented at the individual-level (N = 1,076, above the diagonal) and at the team-level (N = 216, below the diagonal). Coefficient alpha reliability estimates are listed in the diagonal in parentheses. For team resilience we report coefficient alpha reliability both at the individual/team level

[a] Coding of gender: 1 = female; 2 = male. Male is used at the individual-level (above the diagonal) and proportion male at the team level (below the diagonal)

[b] Tenured is reported in years. Tenure is used at the individual-level (above the diagonal) and average tenure at the team level (below the diagonal)

[c] Log (team size) is used at the individual-level (above the diagonal) and at the team level (below the diagonal)

* $p < .05$; ** $p < .01$

conducted several tests: the Average Deviation Index ($AD_{M(J)}$; Burke et al. 1999) was used to assess within-group agreement; the intraclass correlation coefficient—ICC(1)—was used to assess the relative consistency of response among raters; and one-way analyses of variance (ANOVA) were used to test for the existence of statistically significant differences between teams. Conventionally, an $AD_{M(J)}$ equal to or less than 1 is considered sufficient evidence of team agreement (Burke et al. 1999), whereas values greater than .05 for ICC(1) are considered sufficient evidence to justify aggregation (Bliese 2000). Moreover, an ANOVA F value that is statistically significant is a condition that justifies the aggregation of scores at the team level (Kenny and LaVoie 1985). From our measurements, the $AD_{M(J)}$ and ICC(1) indices were found to range from .72 to .97 and from .10 to .14, respectively. One-way ANOVA F values ranged from 1.47 to 1.83 and were significant ($p < .001$) for all variables. Thus, we found empirical justification for aggregation.

The measures of performance also have the team as the referent, but these did not need to show agreement because we only have one measure for each team—that reported by the supervisor.

2.4 Fit Indices

In order to test the hypotheses, we used structural equation modeling (SEM) by AMOS 21.0 (Arbuckle 2010). Maximum likelihood estimation methods were used by computing the absolute and relative indices of goodness-of-fit (Marsh et al. 1996), i.e., the χ^2 Goodness-of-Fit Statistic and the Root Mean Square Error of Approximation (*RMSEA*), as well as the Normed Fit Index (*NFI*), the Incremental Fit Index (*IFI*), the Tucker-Lewis Index (*TLI*), and the Comparative Fit Index (*CFI*). Values below .06 for *RMSEA* indicate a good fit. For the remaining indices, values greater than .90 indicate a good fit, whereas values greater than .95 indicate superior fit (Hu and Bentler 1999).

3 Results

3.1 Descriptive Analyses

Table 1 shows means, standard deviations, aggregation statistics, correlations, and Cronbach's alphas of all the study variables. Each collective positive emotion is positively related with the other ones, and also team in- and extra-role performances are positively related. Moreover, collective positive emotions are positively related to resilience, which in turn is positively related to team performance indicators. Finally, most of the correlations between collective positive emotions and performance are significant but quite low. We also include in the correlation matrix demographic control variables, such as: team size and also log team size because the team size is positively skewed (skewedness = 2.30), gender and tenure at both individual and team level.

Although problems with common method bias may have been overstated (Spector 2006), in order to mitigate the problem two procedural remedies were implemented, as suggested in Podsakoff et al. (2012). Firstly, we obtained the measures from different sources—specifically, the antecedents and mediator measures from (shared perceptions of) employees and the criterion measure from direct supervisors. Secondly, we differentiated the scale properties shared by the measures of the antecedents and mediator variables: collective positive emotions were scored on a "Faces Scale", whereas team resilience was scored on a "Likert Scale". Moreover, using AMOS 21.0, we conducted a Harman's one-factor test (Podsakoff

et al. 2003), which failed to demonstrate a single factor between collective positive emotions and team resilience. The results revealed a poor fit of the one-factor model to the data: $\chi^2(54) = 415.87$, RMSEA = .18, NFI = .76, IFI = .78, TLI = .73, CFI = .78, but a better fit of the two-factor model: $\chi^2(53) = 178.05$, RMSEA = .11, NFI = .90, IFI = .93, TLI = .91, CFI = .92 ($\Delta\chi^2(1) = 287.32$, $p < .001$).

3.2 Hypothesis Testing

According to Brown (2006), in cases in which it may be necessary to use single indicators in a SEM analysis, measurement error can be readily incorporated into a dimensional indicator by fixing its unstandardized error to some non-zero value, calculated on the basis of the measure's sample variance estimate and known psychometric information (e.g., internal consistency). Thus, we fixed the unstandardized error of the indicator of team resilience, in-role performance, and extra-role performance with the formula: variance*(1 − alpha), using alpha value at the team level.

To compute SEM, we used the aggregated database (N = 216). Because we expected a full mediation of team resilience between collective positive emotions and team performance, we tested the full mediation research model (M1). This model tested the fully mediating effects of team resilience between collective positive emotions, on the one hand, and both indicators of team performance on the other. The results of M1, as depicted in Table 2, show that the fully mediating model fits the data well. The path from collective positive emotions to resilience was positive and statistically significant ($\beta = .71$, $p < .001$), as was the path from resilience to team in-role performance ($\beta = .20$, $p < .01$) and extra-role performance ($\beta = .25$, $p < .01$). This finding supported our Hypotheses 1 and 2.

To assess the mediating paths, the Sobel (1988) test was used. Results from this test supported the mediating role of resilience between collective positive emotions and team in-role performance, $Z = 2.58$, $p < .01$, as well as between collective positive emotions and team extra-role performance, $Z = 3.00$, $p < .01$. Moreover, a second competitive model (M2) was developed, where the direct effects from positive emotions to in- and extra-role performance were also tested. Model 2 fitted as well as M1, but the Chi squared comparison showed that it is statistically worse than M1 (see Table 2), $\Delta\chi^2_{M1-M2}(2) = 4.03$, *ns*. These findings suggest a full mediation effect of team resilience between collective positive emotions and team in-role and extra-role performance. As a consequence, Model 1, which is represented graphically in Fig. 1, was the best-fitting model.

It is interesting to note that in M1, positive emotions explain 50.8 % of the variance of team resilience ($R^2 = .508$), which in turn explains 4.2 % of the variance of in-role performance ($R^2 = .042$) and 6.3 % of the variance of extra-role performance ($R^2 = .063$).

Table 2 Results of SEM analyses (N = 216 teams)

Model	χ^2	*df*	RMSEA	NFI	IFI	TLI	CFI	$\Delta\chi^2$ (Δdf)
M1	39.82	19	.07	.96	.98	.97	.98	
M2	35.79	17	.07	.96	.98	.97	.98	M1–M2 (2) = 4.03, ns

χ^2 Chi square, *df* degree of freedom, *RMSEA* Root Mean Square Error of Approximation, *NFI* Normed Fit Index, *IFI* Incremental Fit Index, *TLI* Tucker-Lewis Index, *CFI* Comparative Fit Index

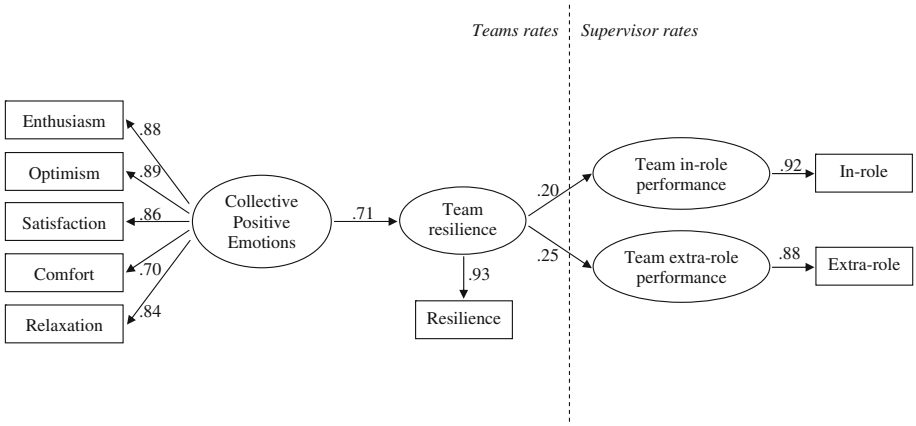

Fig. 1 The final model with standardized path coefficients ($N = 216$)

Analyses were repeated controlling all the variables for team size, and all substantive significant effects remained significant (details available on request from the authors).

4 Discussion

This paper contributes to the literature on positive emotions by examining the mechanism (i.e., team resilience) underlying the relationships between collective positive emotions and team performance. To conduct our study we relied on the B&B theory (Fredrickson 1998, 2001), which maintains that when people experience positive emotions, they broaden their thought-action repertoires. Even though positive emotions and the broadened mindsets they create are short-lived, they can have deep and enduring effects such as building long-term resources (Fredrickson et al. 2003), as it is resilience. In fact, positive emotions also broaden ways of coping with a current stress, and such broad-minded coping becomes psychological resources such as optimism and resilience (Fredrickson et al. 2003). According with this theory, and conceptualized at a collective level, we postulated that collective positive emotions can be considered as antecedents of team resilience. Furthermore, in order to provide a possible explanation of the mechanism that mediates the relationship between group emotions and group outcomes (Rhee 2007), we suggested that team resilience help us to uncover how and why group emotions enhance positive team performance in adverse or stressful situations. In fact, in the same manner as employees, highly resilient teams are better prepared to rebound or bounce back from adversities, problems, and failures since they are more flexible to changing demands, open to new experiences, and they respond positively and persevere in the face of adversity and setbacks (Tugade and Fredrickson 2004).

The results supported our hypotheses, indicating that collective positive emotions (i.e., enthusiasm, optimism, satisfaction, comfort, and relaxation) were positively related to team resilience (confirming Hypothesis 1), and that team resilience was positively related to team in- and extra-role performance reported by supervisor (confirming Hypothesis 2). Moreover, our study demonstrated significant mediation paths through resilience.

Specifically, it was revealed that team resilience fully mediates the effects of collective positive emotions on team performance (confirming Hypothesis 3).

4.1 Theoretical Contributions

The findings from the study provide evidence that team resilience fully accounts for the relationship between collective positive emotions and team performance. Based on B&B theory, we extend prior research on positive emotions in the workplace by moving beyond an individual depiction of this phenomenon and its consequences to explore the process that is generated from group members' shared positive emotions. Furthermore, we contribute to the emerging field of Positive Organizational Behavior by revealing how positive emotions are disseminated among work group members and by outlining the positive outcomes that such a process generates.

Firstly, this suggests that experiences of collective positive emotions can be useful as antecedents of team resilience. This finding is in accordance with the results found at the individual-employee level (Algoe and Fredrickson 2011; Cohn et al. 2009; Fredrickson and Joiner 2002; Ong et al. 2006; Tugade and Fredrickson 2004), and also extend them. In fact, it was shown that through a mechanism of affective sharing (i.e., emotional contagion and comparison, and empathy) people easily shared positive emotional experiences and attained a collective positive emotional state (Walter and Bruch 2008). Our argument is that, as proposed by the B&B theory at the individual level, collective positive emotions allow teams to broaden the scope of both thinking and action, as well as to reinterpret stressful situations and develop positive meaning amidst adversity. This result is in line with previous studies which gave evidence that, when team members share emotion, they are more likely to be motivated and engaged in the process of facing the challenge (Edmondson et al. 2001). Thus, the first finding helps to shed light on the processes underlying the relationships between collective positive emotions and team resilience, thereby providing support for the premises of the B&B theory, and expanding it to the team level of analysis.

Secondly, the present study also suggests that, in the work context and at a collective level, the main process assumed by B&B theory leads to positive team outcomes, like performance. In accordance with our results, collective positive emotions shared within the team context support good team performance through team resilience. This result highlights the fact that experiences of collective positive emotions do not directly account for behavioral outcomes, which contrasts slightly with the proposal of "happy-productive workers". However, team resilience is illustrated as a possible mechanism that links emotional states and behavioral outcomes, although it needs to be confirmed by longitudinal data (Maxwell and Cole 2007). This suggests that teams that are surrounded by collective positive emotions are more likely to experience a greater ability to cope with setbacks and obstacles encountered in the work context, which in turn allow them overcome adversity and maintain or enhance positive outcomes.

Finally, our results revealed that resilience developed by experiences of collective positive emotions support both in-role and extra-role performance, contributing to better operationalization of team performance. As a matter of fact we provided results going beyond in-role performance that is too often closely defined by job descriptions in order to include significant, but often overlooked, behaviors that are not related to the formal organizational reward system but are so beneficial to today's organizations (Avey et al. 2010). Although the strength of the relationship between team resilience and each performance dimensions (i.e., in- and extra-role) is similar, results showed a slight higher relationship between team resilience and extra-role measure than between team resilience

and in-role performance. This result is in line with the proposal that the specific characteristics of the positive psychological capital—namely: efficacy, hope, optimism, and resilience—lead to more frequent engagement in extra-role behaviors (Avey et al. 2010). However the only slight difference encountered in our results may be explained taking into account the definition of resilience, which is considered as the process to face off, persevere and respond positively in the face of adversity. Thus, resilience helps teams to be better prepared to deal with the stressor that met during their job, which is especially important for in-role behaviors. On the other hand, when other variables of PsyCap are considered, as for example have a higher level of optimism regarding the future or confidence in the ability to succeed, employees and teams will more motivate to give extra-role efforts or behavior, like help a coworkers or take charge of extra responsibility.

4.2 Practical Implications

The results of this study suggest a promising direction for interventions to increase team resilience and improve performance in the work context. In fact, both of these aspects have been associated with the presence of collective positive emotions, and thus HRM has the opportunity to shape them by proactively influencing the affective state within their teams.

We suggest that it would be useful to provide individuals with ample opportunities to exhibit their positive emotion within the team context. Group members should therefore be able to easily recognize each other's positive affective expressions on a conscious or non-conscious basis, thereby facilitating processes of emotional contagion, emotional comparison, and empathy (Bartel and Saavedra 2000). Moreover, it was shown that high-quality group relationships should strengthen affective sharing over time, and consequently team members may display a stronger tendency to develop homogenous positive moods and emotions (Walter and Bruch 2008). In this sense, creating and maintaining group bonds, establishing close ties between group members, and enhancing group processes and relationship quality are crucial for HRM.

We also proposed that HRM can try to elicit positive emotions by consistently reminding people to think positively and to find a positive meaning when negative events occur (Luthans et al. 2006). Though organizational members may have been trained to do this, they will still look to their leaders for reassurance or reminders to think positively during times of adversity (Fredrickson 2001). In this sense, managers' leadership behavior could constitute a powerful resource, and development of transformational leadership seems crucial (Moss et al. 2009).

HRM strategies could also be used to proactively build positive emotional experiences for organizational members. For instance, an organization that allows its employees to gain meaning and satisfaction from their work may be providing another vehicle in which positive feelings can be created around ordinary events (Coutu 2002). Furthermore, training emotional intelligence at work (both individually and collectively) could be an interesting area of intervention to increase levels of positive emotions (Salanova et al. 2011).

4.3 Limitations and Future Research

Some limitations of our study should be noted. One limitation is the use of self-reports for the first part of our hypothesized model, since this implies a risk of common method variance. However, our findings were in line with theoretical predictions and with earlier findings, while Harman's one-factor test suggests that common method variance should not

be a serious threat in our study. Moreover, the use of supervisor ratings of performance is a strong point of this study that adds to the robustness of our findings.

Another limitation of the present study is that data are cross-sectional. Although SEM analysis gives some information about the possible direction of the relationships, cross-sectional study designs do not allow one to draw firm conclusions regarding the causal ordering among the variables studied. What's more, cross-sectional approaches to mediation may generate biased estimates of longitudinal mediation parameters even in very large samples, either seriously underestimate or overestimate them (Maxwell and Cole 2007). Thus, longitudinal research is strongly encouraged to examine the causal relationships between collective positive emotions, team resilience, and team performance. For instance, previous data at the individual level revealed clear evidence for an upward spiral in the sense that individuals who experienced more positive emotions than others became more resilient to adversity over time and, in turn, these enhanced coping skills predicted increased positive emotions over time (Fredrickson and Joiner 2002). Accordingly, future research is needed to investigate the dynamic interplay of collective positive emotions and team resilience in the form of a self-reinforcing spiral. Reasonably, this spiraling process will manifest in a continuous upward movement toward greater collective positive emotions and toward increasing team resilience within work groups over time.

Additionally, another limitation refers to the lack of information about the degree of interdependence between employees that shape each team. Although a prerequisite to make each team is that members interact on a daily basis and have interdependent tasks, this information was collected only from the key stakeholders. In future studies an indication of the degree of interdependence of the workers should be collected in order to control the possible effect of this variable.

A final limitation concerns the restricted set of collective emotions and outcomes measured. Although the emotions selected are representative of the main category of the most widely used taxonomy (Warr 1990), taking into account a greater number of emotions would make it possible to investigate whether there is a category (or combination of categories) that provides a greater explanation of the development of resilience. For instance, the recent debate about the utility of discrete emotions calls for more attention to be paid to the role of discrete emotions in predicting different outcomes across particular organizational contexts (Lindebaum and Jordan 2012). Regarding the outcomes measured, we focused on just two indicators of performance but, for example, Whitman et al. (2010) argued that results-oriented criteria like customer satisfaction and productivity should also be the focus of organizational research.

In this research we posit mechanisms by which positive collective emotions build team resilience and improve team performance throughout B&B Theory, but do not explicitly examine what is it that emerges between members of teams who share common interests and perceive the advantages of pursuing them collectively. In this sense, future work might consider whether sense of solidarity, defined as measure of relatedness toward the achievement of mutual interests and goals between employees who perceive the advantages of pursuing them collectively (Goffee and Jones 1998) influence the emergence of collective positive emotions and resilience. For instance, there is clear evidence that solidarity is an important success factors within modern organizations, and it would be related with resilience because solidarity behaviour is negatively related to employees' resistance against organizational changes (Sander and Emmerik, Sanders and Emmerik 2004). Although is important to distinguish between horizontal -from employees towards other employees- and vertical—from employees to their manager–solidarity behaviour (Sanders et al. 2002), both of them are influenced by the behaviour of the supervisor, and evidence

showed that transformational leadership is crucial to enhance solidarity behaviour (Sanders and Schyns 2006).

4.4 Final Note

The findings of this study offer important implications and provide support for the B&B theory of positive emotions as an effective theoretical framework to explain how collective positive emotions influence team resilience in the work context. In addition, the results show the existence of a positive relationship between team resilience and performance, both in- and extra-role, while also offering evidence of the importance of positive emotions and resilience in order to improve performance. Furthermore, this study makes an interesting contribution to the resilience literature by providing evidence for its applicability at the team level within the organizational context.

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