



## May the force be with you: Looking for resources that build team resilience

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### ABSTRACT

The aim of this study is to analyze team resilience as a collective psychosocial construct in the framework of the conservation of resources theory. Specifically, the authors hypothesize that (a) team-level resources and (b) organizational-level healthy practices would be positively related to team resilience. Multilevel regression modeling was conducted, using data from 1,167 employees nested in 194 work teams (team level) from 38 organizations (organizational level). Results confirmed the hypotheses having team-level resources and organizational-level healthy practices significant relationships with team resilience. This study provides evidence that team and organizational resources have a strong relationship with team resilience. Practitioners and managers must take these results into account for planning how to manage their resources within the organization. This article found what resources are required (at the team and the organizational level) to help work-team resilience.

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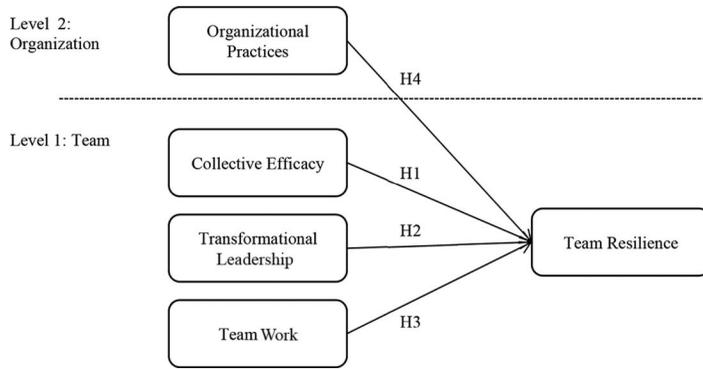
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We are currently living in difficult times, with economic downturns, the lack of confidence in the markets, crises of values, and so on. But it is time not only for surviving, but also for emerging stronger than ever. And this is what resilience is about. Nowadays, top managers who are concerned about the future of their organizations may be requesting an answer to some of these questions: How to help my organization to face the downturns? How to build flexible teams being more resilient to obstacles? And even more, how to develop teams that work well under difficulties reducing strain and being even stronger than before negative events? This study will try to shed some light to answer these questions studying team resilience within organizations.

More specifically, this study analyzed how team resilience is related with team and organizational resources. And this is especially important in these difficult times because organizations having resilient teams could be the difference between surviving and the breakdown. Therefore, this study will present resources, from the team and from the organization, which can be enhanced to increase team resilience. Hence, team resilience is examined

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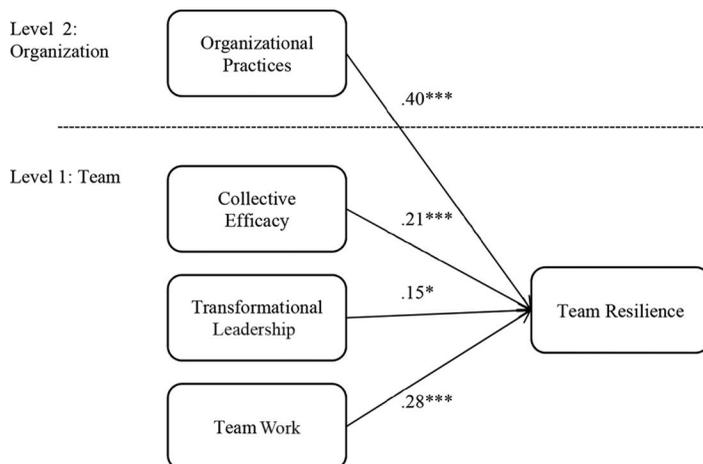
**Figure 1.** Summary of the hypotheses.

within organizations from a multilevel perspective, with the added novelty of analyzing the team and organizational resources associated to team resilience in the framework of the conservation of resources theory (Hobfoll, 2001).

According to the conservation of resources theory (COR) (Hobfoll, 2001) those people or groups possessing sufficient resources (i.e., material, psychological, social) are able not just to maintain what they already have in challenging circumstances but also gain new resources by taking risks, in other words investing their present resources to gain new ones. In fact:

COR Theory, with its emphasis on maintenance, fostering, and protection of resources also has implications for understanding the potential positive impact of severely stressful, even traumatic events. Specifically, in the wake of severe stress, individuals, families, and tribes seek to both repair the damage and to mobilise resources for further resource protection. (Hobfoll, 2001, p. 353)

Because resilience in individuals and groups is grounded in the accumulation of and access to adequate resources, and an orientation to learning



**Figure 2.** Summary of the findings.

and improving (Sutcliffe & Vogus, 2003), the role of resources seems to be crucial to understand team resilience.

### What is resilience?

The term *resilience* was originally widely used and defined in physics as the property of certain materials, especially metals, to resist breakage by impact or strong pressure and return to their initial shape or form. Later on, psychology imported this concept to refer to the ability to bounce back or recover from stress (Smith, Tooley, Christopher, & Kay, 2010). Although most of the psychological studies about resilience have been conducted at the individual level, especially among children (e.g., Masten, 2001), and also from a clinical perspective (Bonanno, 2004). The study of resilience has been extended to other settings such as organizations and communities, especially during crises and disasters (Norris, Stevens, Pfefferbaum, Wyche, & Pfefferbaum, 2008).

In fact, Horne and Orr (1998) defined *resilience* as a fundamental quality of individuals, groups, organizations, and systems as a whole to respond productively to significant change that disrupts the expected pattern of events without engaging in an extended period of regressive behavior. In other words, resilience is not only an individual characteristic, but also a quality that can be studied from a collective point of view (e.g., group, community, and organization). It seems that resilience is an important concept to know how to overcome obstacles and difficult situations. The present study will focus mainly on the emerging, but still scarce, literature of resilience in organizational settings, trying to find the answer to what factors build team resilience from a multilevel approach.

### Resilience in organizational settings

The notion of “resilient organization” has gained popularity as a concept that might help organizations survive and thrive in difficult or volatile economic times (Riulli & Savicki, 2003). Past research has studied organizational resilience from different perspectives, previously seen as a static trait or characteristic of persons and organizations, but recently it is commonly seen in the literature as a dynamic process, a capability that can be enhanced instead of a static trait. For instance, resilience is seen as a capability that can be enhanced in innovation contexts (Moenkemeyer, Hoegl, & Weiss, 2012), as the ability to manage disturbances and to recover a dynamically stable state that allows the organization’s goals of production and safety to be achieved (Tillement, Cholez, & Reverdy, 2009), but also as the maintenance of positive adjustment under challenging conditions, so that the organization emerges from those conditions strengthened and more resourceful (Vogus & Sutcliffe, 2007).

Special attention should be given to Mallak (1998) who went a step further by describing the characteristics that make up resilience in organizations. Specifically, this author argued that resilience in organizations departs from resilient workers, so according to a literature review he obtained the following seven basic principles of resilient workers who (a) perceive experiences constructively, (b) perform positive adaptive behaviors, (c) ensure adequate external resources, (d) expand decision-making boundaries, (e) practice bricolage, (f) develop tolerance for uncertainty, and (g) build virtual role systems. These principles serve as a descriptive guideline of the characteristics of resilience at work. Thus, we know what resilient workers are like, but what do we know about resilient work teams?

### Team resilience

The present study focus is in the highest levels within the organization, that is, the work teams and the organization itself, because we want to know which resources are related with more resilient teams. The study of organizations should involve not only the analysis of the individual component, but also how individuals organize their resources in a collective way to perform their work. In fact, there is a growing tendency to use teams as the basic unit of organizational research (DeShon, Kozlowski, Schmidt, Milner, & Wiechmann, 2004).

*Team resilience* has been defined as a team's belief that it can absorb and cope with strain, as well as a team's capacity to cope, recover, and adjust positively to difficulties (Carmeli, Friedman, & Tishler, 2013). Although team resilience is not new in literature (Alliger, Cerasoli, Tannenbaum, & Vessey, 2015; Bennett, Aden, Broome, Mitchell, & Rigdon, 2010; Blatt, 2009; Carmeli et al., 2013; Menenghel, Salanova, & Martínez, 2016; Stephens, Heaphy, Carmeli, Spreitzer, & Dutton, 2013; West, Patera, & Carsten, 2009) none of the existing studies has focused empirically on how to foster team resilience through team and organizational resources. Thus, a main question arises: how can we foster resilient teams? In this line, Alliger et al. (2015) made a huge effort analyzing what team resilience is and made a great practical contribution explaining behaviors of resilience teams, as well as tips for leaders to make more resilient their teams. As Alliger et al. (2015, p. 178) postulated, resilience is a capacity of the team, that is, something a team may possess, whether a challenge is present. However, in practice, that capacity is only observed under pressure. A challenge makes the team's resilience, or lack of it, visible. It is important to work with the team to make this capacity stronger. Thus, recent research on resilience is attaching more importance to "building resilience," that is, active efforts made to ensure the individual, teams, and organizations have the resources they need to cope with adversity (Lengnick-Hall & Beck, 2005; Somers, 2009). Despite receiving

little attention in the literature, this active role in building resilience is crucial, because knowing how to build resilience within organizations is of vital importance to understand and respond to crisis situations. In sum, resilience is a capability that can be developed deliberately (Lengnick-Hall & Beck, 2005). In fact, resilience in emergency teams could be facilitated through appropriate team structure and management (Pollok, Paton, Smith, & Violanti, 2003). In this line, team affective resources such as collective positive emotions were found to be relevant predictors of team resilience, and in turn, related with team performance (Menenghel et al., 2016). So far, it seems that team affective resources are relevant as positive predictors of team resilience. But, as far as we know, there is a gap in research in determinate multilevel (i.e., organizational and team levels) relationships of team resilience.

Therefore, the objective in the present study, and according to COR theory (Hobfoll, 2001), is to know what kinds of resources are crucial for the team to increase its team resilience. The relevance of investigating the resources that help team resilience lies on the need of organizations to provide its teams of means to overcome the actual (and future) crisis setting. Thus, in this regard, the objective of this study is to find out what resources are required (at the team and the organizational level) to help work-team resilience.

### **The present study: Resources and team resilience**

To answer top managers questions of “how to build flexible teams? and what kind of resources are related with resilient teams?” we will test a group of resources (team and organizational) that may enhance team resilience. Previous research has pointed out what protective resources facilitate individual resilience, and they could be categorized into several factors such as (a) personal competence (e.g., self-esteem, self-efficacy, hope, and determination), (b) social competence (e.g., social adeptness, cheerful mood, coordination, and good communication skills), (c) social or external support (e.g., access to support from friends and family, intimacy, and ability to provide support), and (d) interpersonal and problem-solving skills, such as generating new ideas on how to do things (Friborg, Hjemdal, Rosenvenge, & Martinussen, 2003; Grotberg, 2003). To note, all these resources are tested at individual level, however to our knowledge, no empirical evidence has been found regarding which resources at other levels are related to team resilience.

These resources may have an immediate effect on the individual perception about the ability for being capable not only to overcome crisis and uncertainty situations but also become strengthened once they have passed. But what happens at the team level? We thought that the role played by (a) their beliefs as a team that they are capable of doing their job properly (i.e., collective efficacy); (b) their leader, that is, the way the leader manages with obstacles and difficulties in order to leader his/her team (i.e., transformational

leadership); (c) their capacity to work as a “real” team, having the same aim to achieve and working in an interdependent way (i.e., teamwork); and (d) the support provided by their organization, supplies to the team, and all resources they need to achieve their goal in the healthiest way (i.e., organizational practices). It seems that all these resources could play a crucial role as collective resources that could help team resilience over time.

Firstly, collective efficacy, understood as the shared group belief in their joint capacities to organize and to execute the courses of action required to produce certain levels of profits (Bandura, 1997) could predict team resilience among group members. According to Bandura (2000), collective efficacy influences whether people think erratically or strategically, optimistically or pessimistically; what courses of action they choose to pursue; the goals they set for themselves and their commitment to them; how much effort they put forth in given endeavors; the outcomes they expect their efforts to produce; how long they persevere in the face of obstacles; their resilience to adversity; how much stress and depression they experience in coping with taxing environmental demands; and the accomplishments they realize. Following the above reasoning, we expect that having high collective efficacy make the team members perceive themselves as confident in their ability to cope with adversity and full of resources that help them to perform well their work and be persistent when facing with difficulties. Thus, the team would have the perception that they are able to overcome any crises, therefore, collective efficacy may lead to collective resilience. Thus, the first hypothesis is:

Hypothesis 1: Collective efficacy will be positively associated with team resilience. Thus, the more collective efficacy there is, the more team resilience there will be.

Secondly, transformational leadership occurs when a leader fosters closer relationships with subordinates that are characterized by having less distance between them despite their power, and by an individualized consideration of members’ needs and capabilities (Bass, 1990). In fact, theoretically, there is a link between leadership and resilience. For instance, developing the capacity for resilience is a vital component of the development of authentic leadership (Luthans & Avolio, 2003). Moreover, leadership could provide insight into the etiology and course of positive adjustment or adaptability under challenging conditions (Sutcliffe & Vogus, 2003). Finally, transformational leaders may convert crises into developmental challenges by presenting them as challenges that can be overcome by providing intellectual stimulation to promote subordinates’ thoughtful, creative, adaptive solutions to stressful conditions, rather than hasty, defensive, maladaptive ones (Bass, 1990). Although theoretically the relationship between transformational leadership and resilience seems to be clear, no empirical evidence has been found in team resilience research.

Thus, we hypothesize that transformational leadership leads to more team resilience due to the leader presenting difficulties as challenges that teams can overcome, promoting creative and adaptive solutions to problems, and giving them a clear objective to overcome. Therefore, the second hypothesis is:

Hypothesis 2: Transformational leadership will be positively associated with team resilience. The more transformational leadership there is, the more team resilience there will be.

Thirdly, teamwork is understood as the degree to which team members have the team objectives clear, and they have shared and interdependent goals (Salanova, Cifre, Martínez, Llorens, & Lorente, 2011). Teamwork has emerged recently as one of the most important facilitators in achieving positive, cost-effective outcomes in various organizational settings (Procter & Currie, 2004).

Resilience can be fostered through problem-solving networks, social capital, and relationships, because the greater usage of respectful interaction among team members can accelerate and enrich the exchange of information and the capacity to process it (Sutcliffe & Vogus, 2003). In fact, in teams, the interactive, relational processes among members can facilitate, among other, the sharing of information, learning processes, and the development of adaptive solutions to problems (Stephens et al., 2013). Moreover, when team members see team relationships as helpful in generating new ideas and new opportunities, work teams tend to be more resilient (Carmeli et al., 2013).

Hence, adopting relational work systems that help to support and sustain the coordination that emerges in response to external threats can foster resilience. We expect that teamwork can lead to team resilience because having shared goals, cooperation, and good social relationships builds a basic collective need of “membership” that acts as a functional coping mechanism to deal with external negative events as a team.

Thus, the third hypothesis is:

Hypothesis 3: Teamwork will be positively associated with team resilience. The more teamwork there is, the more team resilience there will be.

Fourthly, organizational practices are analyzed. In this study objective practices of the organization are not measured, but the shared perception of work teams about the accessibility of these positive and healthy strategies is what is even more important. That is, we evaluated whether teams perceive that the firm provides and promotes certain organizational practices such as work–life balance, skills development, career development, well-being, equity, and communication. Access to each of these positive strategies promotes what Friborg et al. (2003) called protective resources.

Taking into account the relevant role that the above-cited organizational practices play, we expect that healthy organizational practices (work–life balance, skills development, career development, well-being, equity, and

communication) lead to team resilience in the sense that they provide team members of protective resources shared as positive and healthy practices to cope with adverse settings. In that sense, the fourth hypothesis is:

Hypothesis 4: Organizational practices will be positively associated with team resilience. The more organizational practices there are, the more team resilience there will be.

To sum up, this study will find out which resources—at the team (i.e., collective efficacy, transformational leadership, and teamwork) and organizational (i.e., organizational practices) levels—enhance work-team resilience.

## Method

### *Participants and procedure*

Researchers approached 38 companies, which agreed to participate in the study. Within the organizations, questionnaires were administered to employees who were asked to participate voluntarily. The initial sample was composed of 1,332 workers nested in 227 teams (i.e., people that work together and share day-to-day work tasks) from the 38 companies.

Because the reference measurement in the questionnaire was the team, we ran agreement indices to guarantee that all teams shared the same perception of the study variables. After the aggregation analyses and according to Bliese (2000) and LeBreton and Senter (2007) cut-off criteria, those work teams that did not show a moderate agreement (30 teams) on the constructs were eliminated from the initial sample. Thus, the final sample was composed of 1,167 employees, nested within 194 teams from 38 companies. Of these, 82% belonged to the service sector (including health care, restoration and catering services, stores, teaching, consulting services, among others) and 18% to the industry sector (including tile manufacturing, construction subsector, and maintenance). As for employees, 55% were women, 85% had a tenured work contract, 12% had a temporary contract, and 3% were self-employed. The average tenure in the current job was 6.63 years ( $SD = 6.49$ ). The team size was from 2 to 37 members, with an average of six members ( $SD = 5.03$ ). Due to the large disparity in the size of teams, the authors found it necessary to control for it in the data analysis.

### *Variables*

Team level (level 1) measurements were constructed or adapted with the aim of ensuring that respondents answered thinking about their team as a reference (and not individually), whereas organizational level (level 2) measures (i.e., organizational practices) comprised the organization as a reference.

Further aggregation analyses were run to verify if the group members in our sample agreed to a great extent on the variables under study (i.e., to verify the consensus among them). All the scales were included and validated in the HEalthy and Resilient Organizations (HERO) questionnaire (Salanova, Llorens, Cifre, & Martínez, 2012). The answers were presented on a 7-point anchored Likert-type scale ranging from 0 (*never*) to 6 (*always*). Thus, measures at team level were team resilience, the dependent variable, was assessed by a 7-item scale (e.g., “In my group, in situations of uncertainty and crisis, we do not fear uncertainty since we know how to deal with it well and even come out strengthened”). The scale was constructed and developed by the authors following Mallak’s (1998) principles of resilience, and it has shown good reliability ( $\alpha = .83$ ) in previous studies (Salanova et al., 2012)  $\alpha = .84$ .

Collective efficacy was assessed by three items ( $\alpha = .88$ ) (e.g., “In my group, we can work properly even when unexpected situations appear”) from the collective efficacy scale by Salanova, Llorens, Cifre, Martínez, and Schaufeli (2003).

Transformational leadership was assessed by 15 items, from the scale validated by Rafferty and Griffin (2004), which comprised five dimensions of transformational leadership, namely, (1) vision, composed of three items (e.g., “Our supervisor has a clear understanding of where we are going”)  $\alpha = .61$ ; (2) inspirational communication, composed of three items (e.g., “Our supervisor says positive things about the work unit”)  $\alpha = .88$ ; (3) intellectual stimulation, composed of three items (e.g., “Our supervisor has ideas that stimulate us to rethink about questions that we had never thought about before”)  $\alpha = .83$ ; (4) supportive leadership, composed of three items (e.g., “Our supervisor behaves in a manner that is thoughtful of our personal needs”)  $\alpha = .92$ ; and (5) personal recognition, composed of three items (e.g., “Our supervisor acknowledges us when we do outstanding work”)  $\alpha = .95$ .

Teamwork was assessed by three items (e.g., “My work unit has clear work objectives”) from the teamwork scale by Salanova, Llorens, and Schaufeli (2011)  $\alpha = .72$ .

Organizational practices was assessed by seven items (e.g., “In this organization there are strategies to facilitate the workers’ work-family balance”) related to different strategies and policies (e.g., work–life balance, skills development, career development, well-being, equity, and communication) that might be implemented by the organization ( $\alpha = .89$ ). The scale was validated in Salanova et al., (2012). Finally, the team size was used as a control variable.

### **Data analyses**

Firstly, descriptive analyses were carried out using the statistical software package SPSS 19. Secondly, the measurement model was tested. Following Caprara, Pastorelli, Regalia, Scabini, and Bandura (2005), confirmatory factor analyses (CFA) were computed to differentiate the constructs of collective

efficacy, transformational leadership, teamwork and organizational practices. Three models were tested: (a) A one-factor model that hypothesized that the two constructs were the expression of a single latent factor (i.e., all the covariances were fixed at 1); (b) An orthogonal model that assumed that both constructs were independent of each other (i.e., all the covariances were fixed at 0); and (c) an oblique model that assumed that the factors were interrelated (i.e., all the covariances were freely estimated).

Thirdly, as a previous step to running multilevel analyses, with the MlwiN 2.02 program (Rashbash, Browne, Healy, Cameron, & Charlton, 2005), it was necessary to ensure data aggregation within teams, and so we computed ICC (1), ICC(2) and  $r_{wg}$  indices (James, Demaree, & Wolf, 1984; LeBreton & Senter, 2007). Fourthly, to test the study hypotheses, multilevel regression modeling was employed, a method recommended for data of a nested nature (Hox, 2002; Raudenbush & Bryk, 2002), because employees were nested within teams and teams within organizations. Within multilevel analyses, it is possible to test and compare several models starting with a null model that includes only the intercept. In the following steps, the consecutive addition of predictor variables is possible at the different levels, and improving one model based on a previous one can be examined by using a likelihood ratio statistic (Hox, 2002).

## Results

### Descriptive analyses

Table 1 shows means, standard deviations, and correlations between the study variables at the team level. As expected, all variables were positively and significantly related with team resilience and also with the rest of our study variables.

### Confirmatory factor analysis

Table 2 shows the results of the CFA at the team member level of our measures among team resilience, collective efficacy, transformational leadership,

**Table 1.** Means, standard deviations, and correlations between the study variables ( $N = 194$  teams).

		Mean	SD	1	2	3	4	5
1	Team size	6	5.03	—				
2	Team resilience	4.45	.58	-.04	—			
3	Collective efficacy	4.89	.59	-.06	.45	—		
4	Transformational leadership	4.05	.74	-.16	.49	.29	—	
5	Team work	4.80	.66	-.19	.52	.36	.63	—
6	Organizational practices	3.38	.57	.01	.37	.19	.39	.28

Note. All correlations are significant ( $p < .01$ ).

**Table 2.** Fit indices of confirmatory factor analyses ( $N = 1167$  employees).

Models	$\chi^2$	<i>df</i>	GFI	AGFI	RMSEA	CFI	IFI	TLI	AIC
1. Unique factor model	3861.73	350	.77	.74	.09	.83	.83	.81	3973.73
2. Orthogonal model	4348.59	350	.75	.71	.10	.80	.80	.79	4460.59
3. Oblique model	1960.10	340	.88	.86	.06	.92	.92	.91	2092.10

Note. *df* =degrees of freedom; GFI = Goodness-of-Fit Index; AGFI = Adjusted Goodness-of-Fit Index; RMSEA = Root mean square error of approximation; CFI = Comparative Fit Index; IFI = Incremental Fit Index; TLI = Tucker-Lewis Index; AIC = Akaike Information Criterion.

teamwork and organizational practices. The chi-squared of all the models was statistically significant; the oblique model shows the best fit indices (see Akaike Information Criterion; Akaike, 1987) and meet the criteria. These results confirm that team resilience, collective efficacy, transformational leadership, teamwork, and organizational practices are interrelated variables but distinct constructs.

### Aggregation analyses

To justify the creation of aggregate scores of the study variables at the team level (team resilience, collective efficacy, transformational leadership, and teamwork) and at the organizational level (organizational practices), inter-rater agreement were calculated using the  $r_{wg(j)}$  index (James et al., 1984). Although some debate exists between the cut-off point of  $r_{wg(j)}$  index, according to LeBreton and Senter (2007) values that range between .51 and .70 offer a moderate agreement and values between .71 to .90 offer strong agreement. Therefore, those work teams that did not show a moderate agreement (30 teams) were eliminated from the initial sample. Therefore, the mean  $r_{wg(j)}$  value for team resilience at the team level was .77 ( $SD = .16$ ), which is above the commonly used .70 threshold (Bliese, 2000) and reveals strong agreement among team members on this construct (LeBreton & Senter, 2007). The same occurs with the rest of the study variables at level 1, namely, collective efficacy  $r_{wg(j)}$  mean value .82 ( $SD = .15$ ), transformational leadership  $r_{wg(j)}$  mean value .78 ( $SD = .16$ ), and teamwork  $r_{wg(j)}$  mean value .77 ( $SD = .19$ ). The organizational practices variable was aggregated at the organizational level  $r_{wg(j)}$  mean value .87 ( $SD = .12$ ).

The intraclass correlations (ICC[1] and ICC[2]) of the study variables at team level were also examined. In this case, ICC(1) estimated the proportion of variance between participants that could be accounted for by differences in team membership, whereas ICC(2) estimated the reliability of the aggregate of the scores for each variable (i.e., team resilience; collective efficacy, transformational leadership, and teamwork) at the team level. The ICC(1) value for variables at level 1 were team resilience .13, for collective efficacy .06, for transformational leadership .21, and for teamwork .14. At level 2, for organizational practices it was .19. All ICC(1) values for the study variables were

within the acceptable criterion for ICC(1) reported in previous reviews of multilevel research (e.g., Bliese, 2000). The ICC(2) value for team resilience was .48, for collective efficacy .29, for transformational leadership it was .62, and for teamwork .49. At level 2, the ICC(2) for organizational practices was .59. Again, these values compare favorably with estimates reported in earlier studies of this type (Schneider, White, & Paul, 1998).

### **Multilevel analyses**

As Kozlowski and Klein (2000) explained, multilevel models are designed to bridge micro- and macroperspectives, specifying relationships between phenomena at higher and at lower levels of analysis. In addition, links between phenomena at different levels may be top-down or bottom-up. This article focuses on top-down processes, that is, contextual influences. Each level of an organizational system is embedded or included in a higher-level context. Thus individuals are embedded within groups, groups within organizations, organizations within industries, and so on.

Before testing the hypotheses, the ICC for the study variables was calculated, to estimate the proportion of variance that is explained at each level (Hox, 2002). The results showed that 80% of the variance in team resilience is explained by variables from the first level, (i.e., team level). The variance explained on the second level (organization) was 20%. The results evidence the existence of two levels of analyses, thereby suggesting that a significant proportion of team resilience variance is explained by team variables but also by organizational variables. This therefore allows us to compute multilevel analyses, more specifically, a cross-level direct-effect model. It should be noted that, in accordance with our hypothesis, predictor variables at level 1 were entered as group-mean-centered variables, whereas predictor variables at level 2 were entered as grand-mean-centered variables. The reason for this is that in contextual models (where the group-level predictor is the aggregate of the individual-level predictor), either grand-mean- or group-mean-centering options could be used, depending on the study hypotheses (Hoffmann & Gavin, 1998).

### **Hypotheses testing**

Following González-Romá (2008), to test hypotheses, three nested models were examined: Model 1 intercept-only. This model, also called baseline model with random intercepts, is interpreted as a measure of nonindependence (Bliese, 2000), which allows to decompose the total variance of the dependent variable into intrateam variance and between-team variance. It is an initial model on which the intercepts are assumed to vary randomly through the teams; in Model 2 we added the variables at the first level,

**Table 3.** Multilevel estimates for models predicting team resilience;  $N = 194$  teams, and  $N = 38$  companies.

Parameter	Model 1			Model 2			Model 3		
	Estimate	SE	t	Estimate	SE	t	Estimate	SE	t
Intercept level 1	4.44	.06	75.32***	4.41	0.07	62.04***	4.39	0.06	74.47***
Team size				0.01	0.01	0.86	0.01	0.01	0.83
Collective efficacy				0.21	0.06	3.34***	0.21	0.06	3.34***
Transformational leadership				0.15	0.06	2.42*	0.15	0.06	2.42*
Team work level 2				0.28	0.07	3.97***	0.28	0.07	4.01***
Organizational practices							0.40	0.08	5.19***
-2 *log likelihood			326.18			258.92			238.08
Team level variance			.33 (80%)						
Organizational level variance			.27 (20%)						

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

including the control variable team size, such as collective efficacy, transformational leadership, and teamwork. This model reports an estimation of the relationship between the predictor of level 1 and the criteria variables. In addition, it shows an estimation of the variances of the intercepts and the slopes of regression through teams. Model 3 is where we added the variables at the second level, namely, organizational practices. This model, allows us to estimate the cross-level effect and to determine the proportion of variance of the intercept that is explained by the variable in level 2. To know the relevance or weight that each of the variables has on team resilience, we standardized the estimates in accordance with Hox's (1995) guidelines. Table 3 presents unstandardized estimates, standard errors, and  $t$  values for all predictor variables in all three models. It also presents the deviance ( $-2*\log$ ) of all the models. A significant decrease in the deviance indicates a better fit of the model.

The analyses revealed that Model 2 showed a significant improvement over Model 1; variables at team level were seen to be significantly related to team resilience, and the team size has no significant effect on the study variables. These results mean that collective efficacy, transformational leadership, and teamwork are key factors to develop and build team resilience. In other words, the more collective efficacy, transformational leadership, and teamwork the team perceives, the more team resilience there will be. Deviance from Model 2 with that of Model 1 was compared, and a significant improvement was observed. This means that including team level variables adds a significant degree of explanatory power to the dependent variable *team resilience*.

In Model 3, predictor variables at the organizational level were included, and organizational practices were found to exert a significant effect on team resilience. Furthermore, looking at the deviance, we noted a significant improvement in comparison with the previous model (Model 2). Thus, the model with the best fit was Model 3, which showed significant effects of both group (i.e., collective efficacy, transformational leadership, and teamwork) and organizational

factors (i.e., organizational practices) on the development of team resilience. No significant effect was found, however, for team size as a control variable. In other words, team resilience is partly explained by team level variables such as (1) collective efficacy, confirming Hypothesis 1; (2) transformational leadership, confirming Hypothesis 2; (3) teamwork, confirming Hypothesis 3; (4) it is also explained by organizational level variables such as organizational practices, confirming Hypothesis 4. Moreover, after standardizing estimates, and taking into account the best-fitting model (Model 3), the standardized coefficients are the following: collective efficacy (.21,  $p < .001$ ), transformational leadership (.19,  $p < .05$ ), teamwork (.32,  $p < .001$ ), and organizational practices (.39,  $p < .001$ ). Therefore, results reveal that organizational practices are associated most strongly with team resilience, followed by teamwork, collective efficacy, and transformational leadership.

## Discussion

At the beginning of this study we wondered how to increase resilience among teams, and what are the resources that may help teams to perceive they are capable to bounce back from difficulties. This study has confirmed, in agreement with hypotheses, that team resilience is related with team resources (such as collective efficacy, transformational leadership, and teamwork) and organizational resources (such as positive organizational practices). In other words, those teams that perceive they have these team and organizational resources are more flexible teams—being resilient teams. Specifically, through multilevel regression modeling, results show that team resilience is explained by team level variables such as collective efficacy, transformational leadership, and teamwork (Hypotheses 1, 2, and 3 confirmed); and by organizational-level variables such as organizational practices (Hypothesis 4 confirmed). Moreover, these results highlight the important role played by the organization, through its strategies, in increasing team resilience.

### *Theoretical and practical contributions*

The present study has contributed to confirm the existence of multilevel relationships of team resilience, understanding “team resilience” as team capability for being capable to overcome crisis and uncertainty situations and even become strengthened once they have passed. Thus, taking into account the current world context of economic crisis and financial turmoil it makes sense to find tools that help organizations not only to survive these difficult times, but also to be stronger than ever. Team resilience, which we have tested theoretically as well as methodologically, is the collective construct in which all members perceives the whole team as a homogeneous group with plenty of resources, a common leader that guides them in a

transformational way, with very clear objectives to achieve, within an organization that helps them. Furthermore, this homogeneity is tested thanks to several agreement indices such as  $r_{wg}$  and ICC.

More importantly, this article also contributes to a better understanding of how to help team resilience in organizational settings. In this study we have successfully named the resources, at the team and organizational levels, which contribute to increased team resilience, as far as they have a significant and positive relationship. In other words, following the existing literature, which is mainly descriptive and theoretical regarding resilience in organizational settings, our main contribution is providing empirical proof that collective efficacy, transformational leadership, teamwork, and organizational practices are positively associated with team resilience.

Therefore, all the named resources have been tested to have a relationship with team resilience, creating a resources network (in different levels) that supply teams a coping strategy that would allow them not only survive to every difficulty and crisis but become strengthened, in line with COR theory (Hobfoll, 2001).

This study covers two gaps in the existing literature. On the one hand, we tested a model as a whole, taking into account the diverse multilevel factors (team and organizational levels) at the same time. And, on the other hand, we used a reliable tool to assess team resilience without mixing it with individual resilience. In other words, this study provides a more holistic view of the construct of resilience, understanding it as a collective construct (i.e., team resilience) rather than an individual one.

Regarding practical contributions, although crises cannot be avoided and resilience does not protect the individual from negative life events, organizations can protect workers and teams by boosting their resilience, because this will help them cope with stress more functionally and flexibly. This study has shown that organizations can make a great contribution to help resilience in their teams, and it is important to give solutions because resilience is a topic in business (Coutu, 2002).

In this line, we agree with Luthans and Youssef (2004,) when these authors said that:

there is a general misconception that resiliency is an extraordinary gift; a magical, mystical, rare capacity; a trait that results only from genetic or long-term environmental variables; or a “super material” that distinguishes survivors from failures. Often times resiliency is viewed as an after-the-fact passive adjustment process, manifested in terms of freedom of pathological symptoms subsequent to exposure to otherwise devastating adversities. However, we believe that resiliency is a lifelong developmental journey that people undertake in daily, progressive steps. In other words, resiliency is a process, rather than an end goal. (p. 156)

Thus, because resilience can be enhanced (Lengnick-Hall, Beck, & Lengnick-Hall, 2011; Pollock, Paton, Smith, & Violanti, 2003), this study has

demonstrated empirically which aspects of the organization researchers and practitioners should focus on (e.g., collective efficacy, transformational leadership, teamwork, and organizational practices). For instance, to help team resilience, practitioners should pay attention to boosting collective efficacy through managing interventions. Furthermore, practitioners and organizations may focus on implementing organizational practices such as facilitating communication, career development or work–family balance; also to facilitate and improve teamwork through training; developing collective efficacy beliefs among team members and to train transformational leadership within teams.

### ***Strengths of the study***

This study has several strengths. It has been shown empirically that firstly organizational (organizational practices) and team resources (teamworking, efficacy beliefs, and transformational leadership) have a relationship with team resilience. In this study, organizations are understood as an integrated system, not only comprising workers, but also of work teams and the organization itself. This conception has allowed us to understand resilience as a collective construct that can be fostered by the team as well as the strategies created by the organization. In relation to the previous point, data has been processed in a multilevel way. Data has been aggregated at two levels, the team and the organizational levels, with all teams that did not meet the criteria of aggregation being removed from the sample. That means that only those teams that had a real shared perception on the study variables (i.e., collective efficacy, transformational leadership, teamwork, and organizational practices) were taken into account.

Finally, even though data were eliminated (i.e., teams that did not reach enough agreement), it is important to stress that the great amount of data used in this multilevel study, with 38 organizations from several sectors and all kinds of teams, allows us to generalize our results. Moreover, analyses have been controlled for team size, meaning that results are the same for bigger than for small groups.

### ***Weaknesses and future research***

Despite its contributions, this study has also some limitations. The most important one is that there is only one time lag in this study. Thus, there are not causal relationships among team and organizational resources, and team resilience. Therefore, it is not possible to test whether those teams that have more resources, thus more team resilience, will face some future crisis or difficult situations better than those teams with low team resilience. In further research it would be interesting to use a longitudinal design to test causal as well as reciprocal relations among resources and team resilience over time.

Moreover, it would be interesting to propose experiments within the organization, to establish causality among our study variables.

Several authors (i.e., Friborg et al., 2003; Salanova et al., 2012; Windle, 2011) have proposed many more resilience antecedents, and this study has studied four of them. In future studies it would be interesting to follow other authors' suggestions, such as Maddi and Khoshaba (2005) that highlighted other strategies like culture, climate, and structure that can be taken into account in future research. Furthermore, Sheffi and Rice (2005) proposed that an organization's ability to recover from disruption quickly can be improved by building redundancy and flexibility into its supply chain.

All measures are self-reported. Although the shared perception of the team workers reduces this weakness (i.e., agreement), and a CFA have been performed to avoid the common method variance. It would be far better if the study had objective data about team and organization performance to analyze the relationship between resilient teams and objective outputs. Moreover, we have highlighted that those groups that did not achieve the criteria for aggregation, that is, it was not a common and shared perception about the team resilience, were removed from the sample, because we were only interested in share perceptions, but, at this point arise many doubts for authors, such as (a) Why there is not agreement in those teams? (b) Have they any characteristics that the groups with agreement have not? (c) Is there the same relationships between antecedents and team resilience in both kinds of groups?

Finally, in future studies the authors also want, apart from analyzing other antecedents, to focus not only on team resilience but also organizational resilience by analyzing the organization as a whole. Perhaps in future studies an answer can be found to the following question: Are resilient organizations those that have a higher number of resilient teams?

### **Final note**

With this study we have shown empirically that team resilience is positively associated with team and organizational resources, in fact how the team perceives they have these resources may be a big help to bounce back from difficulties. Taking into account the difficult times many organizations around the world are living nowadays, we hope the results from the present study shed some light on research and actions that can be implemented to increase team resilience in organizational settings.

### **References**

- Akaike, H. (1987). Factor analysis and the AIC. *Psychometrika*, 52, 317–332.
- Alliger, G. M., Cerasoli, C. P., Tannenbaum, S. I., & Vessey, W. B. (2015). Team resilience: How teams flourish under pressure. *Organizational Dynamics*, 44, 176–184.

- Bandura, A. (1997). *Self efficacy: The exercise of control*. New York, NY: Freeman.
- Bandura, A. (2000). Exercise of human agency through collective efficacy. *Current Directions in Psychological Science*, 9, 75–78. doi:10.1111/1467-8721.00064
- Bass, B. (1990). *Handbook of leadership* (3rd ed.). New York, NY: Free Press.
- Bennett, J. B., Aden, C. A., Broome, K., Mitchell, K., & Rigdon, W. D. (2010). Team resilience for young restaurant workers: Research-to-practice adaptation and assessment. *Journal of Occupational Health Psychology*, 15, 223–236. doi:10.1037/a0019379
- Blatt, R. (2009). Resilience in entrepreneurial teams: Developing the capacity to pull through. *Frontiers of Entrepreneurship Research*, 29, 1–14.
- Bliese, P. D. (2000). Within-group agreement, non-independence, and reliability: Implications for data aggregation. In K. J. Klein & S. W. J. Kozlowski (Eds.), *Multilevel theory, research, and methods in organizations* (pp. 349–381). San Francisco, CA: Jossey-Bass.
- Bonanno, G. (2004). Loss, trauma, and human resilience: Have we underestimated the human capacity to thrive after extremely aversive events? *American Psychologist*, 59, 20–28. doi:10.1037/0003-066x.59.1.20
- Caprara, G. V., Pastorelli, C., Regalia, C., Scabini, S., & Bandura, A. (2005). Impact of adolescents' filial self-efficacy on quality of family functioning and satisfaction. *Journal of Research on Adolescence*, 15, 71–97. doi:10.1111/j.1532-7795.2005.00087.x
- Carmeli, A., Friedman, Y., & Tishler, A. (2013). Cultivating a resilient top management team: The importance of relational connections and strategic decision comprehensiveness. *Safety Science*, 51, 148–159. doi:10.1016/j.ssci.2012.06.002
- Coutu, D. (2002). How resilience works. *Harvard Business Review*. Retrieved from <https://hbr.org/2002/05/how-resilience-works>.
- DeShon, R. P., Kozlowski, S. W. J., Schmidt, A. M., Milner, K. R., & Wiechmann, D. (2004). A multiple-goal, multilevel model of feedback effects on the regulation of individual and team performance. *Journal of Applied Psychology*, 89, 1035–1056. doi:10.1037/0021-9010.89.6.1035
- Friborg, O., Hjemdal, O., Rosenvenge, J. H., & Martinussen, M. (2003). A new rating scale for adult resilience: What are the central protective resources behind healthy adjustment? *International Journal of Methods in Psychiatric Research*, 12, 65–76. doi:10.1002/mpr.143
- González-Romá, V. (2008). Modelos multinivel en la investigación psicosocial [Multilevel models in psychological research]. In J. F. Morales Domínguez, C. Huici Casal, A. Gómez Jiménez, & y. E. Gaviria Stewart (Eds.), *Método, teoría e investigación en psicología social* (pp. 69–84). Madrid, Spain: Pearson Educación.
- Grotberg, E. H. (2003). *Resilience for today: Gaining strength from adversity*. Westport, CT: London Praeger.
- Hobfoll, S. E. (2001). The influence of culture, community, and the nested-self in the stress process: Advancing conservation of resources theory. *Applied Psychology: An International Review*, 50, 337–370.
- Hoffmann, D. A., & Gavin, M. B. (1998). Centering decisions in hierarchical linear models: Implications for research in organizations. *Journal of Management*, 24, 623–641. doi:10.1016/s0149-2063(99)80077-4
- Horne, J. F., & Orr, J. E. (1998). Assessing behaviors that create resilient organizations. *Employment Relations Today*, 24, 29–39.
- Hox, J. J. (1995). *Applied multilevel analysis*. Amsterdam, The Netherlands: TT-Publikaties.
- Hox, J. J. (2002). *Multilevel analysis techniques and applications*. Mahwah, NJ: Lawrence Erlbaum Associates.
- James, L. R., Demaree, R. G., & Wolf, G. (1984). Estimating within-group interrater reliability with and without response bias. *Journal of Applied Psychology*, 69, 85–98. doi:10.1037//0021-9010.69.1.85

- Kozlowski, S. W. J., & Klein, K. J. (2000). A Multilevel approach to theory and research in organizations: Contextual, temporal, and emergent processes. In K. J. Klein & S. W. J. Kozlowski (Eds.), *Multilevel theory, research, and methods in organizations: Foundations, extensions, and new directions* (pp. 3–90). San Francisco, CA: Jossey-Bass.
- LeBreton, J. M., & Senter, J. L. (2007). Answers to 20 questions about interrater reliability and interrater agreement. *Organizational Research Methods, 11*, 815–852.
- Lengnick-Hall, C. A., & Beck, T. E. (2005). Adaptive fit versus robust transformation: How organizations respond to environmental change. *Journal of Management, 31*, 738–757. doi:10.1177/0149206305279367
- Lengnick-Hall, C. A., Beck, T. E., & Lengnick-Hall, M. L. (2011). Developing a capacity for organizational resilience through strategic human resource management. *Human Resource Management Review, 21*, 243–255. doi:10.1016/j.hrmr.2010.07.001
- Luthans, F., & Avolio, B. (2003). Authentic leadership development. In K. S. Cameron, J. E. Dutton & R. E. Quinn (Eds.), *Positive organizational scholarship: Foundations of a new discipline* (pp. 241–258). San Francisco, CA: Berrett-Koehler.
- Luthans, F., & Youssef, C. M. (2004). Human, social, and now positive psychological capital management. *Organizational Dynamics, 33*, 143–160. doi:10.1016/j.orgdyn.2004.01.003
- Maddi, S. R., & Khoshaba, D. M. (2005). *Resilience at work: How to succeed no matter what life throws at you*. New York, NY: AMACOM.
- Mallak, L. (1998). Putting organizational resilience process to work. *Industrial Management, 40*, 8–14.
- Masten, A. S. (2001). Ordinary magic: Resilience processes in development. *American Psychologist, 56*, 227–238. doi:10.1037/0003-066x.56.3.227
- Menenghel, I., Salanova, M., & Martínez, I. M. (2016). Feeling good makes us stronger: How team resilience mediates the effect of positive emotions on team performance. *Journal of Happiness Studies, 17*, 239–255.
- Moenkemeyer, G., Hoegl, M., & Weiss, M. (2012). Innovator resilience potential: A process perspective of individual resilience as influenced by innovation project termination. *Human Relations, 65*, 627–655. doi:10.1177/0018726711431350
- Norris, F., Stevens, S., Pfefferbaum, B., Wyche, K., & Pfefferbaum, R. (2008). Community resilience as a metaphor, theory, set of capacities, and strategy for disaster readiness. *American Journal of Community Psychology, 41*, 127–150.
- Pollock, C., Paton, D., Smith, L., & Violanti, J. (2003). Training for resilience. In D. Paton, J. M. Violanti & L. M. Smith (Eds.), *Promoting capabilities to manage posttraumatic stress* (pp. 89–102). Springfield, IL: Charles C Thomas.
- Procter, S., & Currie, G. (2004). Target-based teamworking: Groups, work and interdependence in the UK civil service. *Human Relations, 57*, 1547–1572. doi:10.1177/0018726704049989
- Rafferty, A. E., & Griffin, M. A. (2004). Dimensions of transformational leadership: Conceptual and empirical extensions. *Leadership Quarterly, 15*, 329–354. doi:10.1016/j.leaqua.2004.02.009
- Rashbash, J., Browne, W., Healy, M., Cameron, B., & Charlton, C. (2005). *MLwiN (Version 2.02): Interactive software for multilevel analysis. Multilevel models project*. London, England: University of London, Institute of Education.
- Raudenbush, S. W., & Bryk, A. S. (2002). *Hierarchical linear models: Applications and data analysis methods* (2nd ed.). Thousand Oaks, CA: Sage.
- Riulli, L., & Savicki, V. (2003). Information system organisational resilience. *International Journal of Management Science, 31*, 227–233.
- Salanova, M., Cifre, E., Martínez, I. M., Llorens, S., & Lorente, L. (2011). Psychosocial risks and positive factors among construction workers. In S. Clarke, C. Cooper & R. Burke (Eds.),

- Occupational health and safety: Psychological and behavioral challenges* (pp. 295–320). Farnham, UK: Gower.
- Salanova, M., Llorens, S., & Schaufeli, W. B. (2011). Yes, I can, I feel good & I just do it! On gain cycles and spirals of efficacy beliefs, affect, and engagement. *Applied Psychology: An International Review*, *60*, 255–285. doi:10.1111/j.1464-0597.2010.00435.x
- Salanova, M., Llorens, S., Cifre, E., & Martínez, I. M. (2012). We need a hero! Towards a validation of the healthy & resilient organization (HERO) model. *Group & Organization Management*, *37*, 785–822.
- Salanova, M., Llorens, S., Cifre, E., Martínez, I., & Schaufeli, W. B. (2003). Perceived collective efficacy, subjective well-being and task performance among electronic work groups: An experimental study. *Small Group Research*, *34*, 43–73. doi:10.1177/1046496402239577
- Schneider, B., White, S. S., & Paul, M. C. (1998). Linking service climate and customer perceptions of service quality: Test of a causal model. *Journal of Applied Psychology*, *83*, 150–163. doi:10.1037//0021-9010.83.2.150
- Sheffi, Y., & Rice, J. B. (2005). A supply chain view of the resilient enterprise. *MIT Sloan Management Review*, *47*, 41–47.
- Smith, B. W., Tooley, E. M., Christopher, P. J., & Kay, V. S. (2010). Resilience as the ability to bounce back from stress: A neglected personal resource? *Journal of Positive Psychology*, *5*, 166–176. doi:10.1080/17439760.2010.482186
- Somers, S. (2009). Measuring resilience potential: An adaptive strategy for organizational crisis planning. *Journal of Contingencies and Crisis Management*, *17*, 12–23. doi:10.1111/j.1468-5973.2009.00558.x
- Stephens, J. P., Heaphy, E. D., Carmeli, A., Spreitzer, G. M., & Dutton, J. E. (2013). Relationship quality and virtuousness: Emotional carrying capacity as a source of individual and team resilience. *Journal of Applied Behavioral Science*, *49*, 13–41. doi:10.1177/0021886312471193
- Sutcliffe, K., & Vogus, T. (2003). Organizing for resilience. In K. Cameron, J. Dutton & R. Quinn (Eds.), *Positive organizational scholarship: Foundations of a new discipline* (pp. 94–110). San Francisco, CA: Berrett-Koehler.
- Tillement, S., Cholez, C., & Reverdy, T. (2009). Assessing organizational resilience: An interactionist approach. *Management*, *12*, 230–265.
- Vogus, T. J., & Sutcliffe, K. M. (2007). Organizational resilience: Towards a theory and research agenda. In *Proceedings of the IEEE International Conference on Systems, Man and Cybernetics, Montréal, Canada, 7–10 October* (pp. 3418–3422). New York, NY: IEEE.
- West, J. B., Patera, J. L., & Carsten, M. K. (2009). Team level positivity: Investigating positive psychological capacities and team level outcomes. *Journal of Organizational Behavior*, *30*, 249–267. doi:10.1002/job.593
- Windle, G. (2011). What is resilience? A review and concept analysis. *Reviews in Clinical Gerontology*, *21*, 152–169.