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Mapping the Association of Emotional Contagion to Leaders, Colleagues, and Clients: Implications for Leadership

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This article investigates emotional contagion in workplaces by proposing an expanded approach that simultaneously considers contagion both absorbed by (i.e., contagion absorbed) and issued toward (i.e., contagion infected) others, namely, within-individual bidirectional contagion. Furthermore, it explores the differential association of contagion to leaders, colleagues, and clients, namely, a holistic mapping. Participants ($N = 694$) from six organizations were asked how frequently they both absorbed and transmitted four basic emotions from or to others, and whether the emotional experience occurred with regard to their leaders, colleagues, and clients. The findings reveal that positive and negative emotions considered for within-individual bidirectional contagion were more frequently experienced with colleagues followed by clients, whereas leaders were the least associated with emotional contagion. The relevance of a holistic mapping of emotional contagion in work settings and its implications for leadership are discussed. *Organization Management Journal*, 12: 178–192, 2015. doi: 10.1080/15416518.2015.1073577

Keywords clients; colleagues; emotional contagion; holistic mapping; leaders

During the past decade the study of emotions in organizational behavior has become central to understanding experiences at work (Ashkanasy & Humphrey, 2011). Several affect-related phenomena have fueled an explosion of interest in the investigation of emotion in organizations. Emotional contagion (EC) is the automatic and unintentional tendency of people to catch/absorb another individual's emotional experience (i.e., EC absorbed) and simultaneously infect others with their own emotions (i.e., EC infected), thereby achieving emotional convergence during social interactions (Hatfield, Cacioppo, & Rapson, 1994). Emotional contagion occurs below conscious recognition and takes a few milliseconds to appear in the neocortex for conceptualization (LeDoux, 2002). This neural circuit allows for individual's awareness of emotional exchanges with others, thus enabling the individual to answer a self-report survey on EC, as is the case in this study. Emotional contagion is considered a ubiquitous phenomenon (Hatfield & Rapson, 2004), and a basic building block of human interaction (Hatfield & Rapson, 1998), also involving "epidemic" spreading of emotions in large social communities (Hatfield, Forbes, & Rapson, 2014). While theory (Hatfield et al., 2014) and neurosciences have acknowledged that any individual simultaneously soaks others' emotions and expresses emotions that infect the people around him or her, to date, research on EC in organizational contexts (a) is still confined to emotions absorbed from others, and (b) focuses on situations wherein one individual (or group of individuals) is a receiver of emotions and another individual (or group of individuals) is the sender of emotions (i.e., EC absorbed).

Hence, the primary contribution of this article is to propose an expanded conceptualization of EC, and the accompanying measure, by simultaneously considering EC absorbed by (i.e., EC absorbed) as well as transmitted to (i.e., EC infected) others. This two-facet EC is referred to a within-individual bidirectional EC.

Interest in emotions has also grown in the leadership domain. Leaders are increasingly faced with the challenge of effectively managing emotional processes as relevant predictors of performance and well-being. Most influential and emerging theories of transformational, charismatic, and servant leadership posit emotional links between leaders and followers, and speculate that affect and emotions are deeply intertwined with the process of leading, with leading outcomes and follower outcomes (Barbuto & Wheeler, 2006; Bono, Foldes, Vinson, & Muros, 2007; Gooty, Connelly, Griffith, & Gupta, 2010). In particular, "emotional contagion presents itself as one of the main underlying mechanisms in the relationships between emotionality and leadership" (Rajah, Song, & Arvey, 2011, p. 1114). However, in the realm of EC studies, the predominant approach has focused on the dyadic relationship between leader and followers, as if they were isolated from the other organizational stakeholders

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they concurrently relate to. In the context of this article, the term *dyadic* refers to two different roles held within an interpersonal relationship, and it is not limited to a two-individual situation. Therefore, a second aim of this article is to provide a holistic approach to the mapping of EC in work settings. The term *holistic* refers to the simultaneous measurement (i.e., mapping) of the differential association of contagion to the main organizational stakeholders: leaders, colleagues, and clients. In other words, the investigation is not solely focused on the exchanges of emotional exchanges in dyadic relationships (e.g., leader–follower(s), employee–customer). Furthermore, the holistic mapping is done with regard to both EC absorbed and EC infected.

The current study contributes to the existing literature in at least two ways. First, by disentangling emotions absorbed by others and infected into others (i.e., within-individual bidirectional EC), the article seek to advance the understanding of emotion circulation dynamics at the workplace, which is still underexamined in comparison to the predominant one-way investigation of EC absorbed. The ultimate goal is to move beyond the existing static view of an individual solely absorbing the emotions of other by highlighting the dynamic process of the emotions felt by the individual and transmitted to, infected into, and issued toward others. The emotions infected into others (EC infected) specifically consider how respondents themselves contribute to emotions circulation and emotionally influence others around in the work context (i.e., an active and agentic approach). Second, research on the mapping of multiple foci contagion of emotions in workplaces is still underexamined in comparison to the widespread focus on dyadic and one-way investigations of emotional dynamics. Hence, the study can contribute to further a comprehensive association of emotions to different organizational stakeholders. Overall, this has relevant theoretical and practical implications: (a) It facilitates preventive initiatives by including a more agentic perspective aimed at increasing people's awareness of their contribution to emotional dynamics and actively using the emotions experienced to effectively manage relationships at work, and (b) it addresses the leadership caveat of taking for granted the primacy of emotional links between leaders and followers, and the relevance of testing the leader–follower(s) emotional bond by contrasting it against the emotional ties among followers themselves, and between followers and clients.

The article is organized as follows. First, it provides the theoretical background for the expanded conceptualization of emotional contagion as a within-individual bidirectional phenomenon, and a holistic approach to the impact of the differential roles that people hold (i.e., leaders, colleagues, and clients) on the emotions that circulate at work. Then it focuses on the link between leadership, emotional processes, and emotional contagion, and identifies shortcomings in the literature that are addressed in the empirical part.

EMOTIONAL CONTAGION: A BIDIRECTIONAL APPROACH

Emotional contagion refers to an individual experience of emotion that includes the interpersonal component of the feelings exchanged during social encounters. The predominant approach to EC to date has been characterized by the study of how people can capture the emotions of others (Hatfield, Cacioppo, & Rapson, 1993), namely, *emotional contagion absorbed*. People tend to mimic the facial, vocal, postural, and behavioral emotional cues "of those around them, and thereby 'catch' others' emotions as a consequence of such facial, vocal, and postural feedback" (Hatfield et al., 1993, p. 3). In addition to face-to-face settings, EC also spreads through written and visual cues in electronic communication contexts, wherein people regularly encounter emotion displays in their online life (Belkin, 2008). However, people are also able to draw others into their emotional orbits and infect them with the emotions they express (Hatfield & Rapson, 1998), namely, *emotional contagion infected*.

Literature on the neural basis of EC suggests that it spreads in milliseconds below conscious recognition (LeDoux, 2002). However, the emotional signal subsequently takes a few milliseconds to appear in the neocortex for conceptualization (LeDoux, 2002), thus allowing an individual's awareness of emotional exchanges with others. Therefore, people can consciously report on their contagion experience and answer to self-report surveys. Furthermore, the mirror neuron system fosters imitation and mimicry mechanisms through which people (a) perceive the other's expression of emotions, as well as (b) send emotional signals that arouse emotions in others during social interactions (Iacoboni, 2009; Nummenmaa, Hirvonen, Parkkola, & Hietanen, 2008; Rizzolatti & Craighero, 2004). Taken together, findings from the neurosciences support the automatic, within-individual bidirectional experience of emotions absorbed by (EC absorbed) and infected into (EC infected) others, and the individual awareness of emotional contagion both absorbed and infected. Therefore, the individual is suggested to be aware of his or her emotional experience and enabled to self-report contagion both absorbed and infected during social encounters. However, consistent with literature (Hatfield et al., 1994), it is worth noting that people are faced with two different emotion recognition tasks when they have to recognize their own emotions absorbed by others (i.e., EC absorbed) as compared to recognizing the emotions they have transmitted to others (i.e., EC infected). Specifically, the self-report of emotions infected into others is a three-step process: (a) people experience an emotion, (b) realize that they have transmitted it to others, and (c) recognize the same emotion they originally experienced in others' emotional expressions.

The present pilot study was specifically designed to focus on employees' perceptions of the emotions they absorb from other (i.e., EC absorbed), and the perception of their own experienced emotions subsequently transmitted to others (i.e., EC infected).

Consistent with this goal, it is emphasized that the self-report methodology used in the current research seemed appropriate (Miles, Borman, Spector, & Fox, 2002), also considering that EC (absorbed and infected) refers by definition to perceptions and evaluations related to an individual self-system that only the person can report on in terms of personal experience (Caprara & Cervone, 2000). The boundary conditions of this type of data are addressed in the Limitations section. Extant research using self-report investigation of EC usually relies on the following measures. The self-report Emotional Contagion Scale of Hatfield and Rapson (1998) operationalizes the construct as the individual's general susceptibility to absorb a variety of other people's affective clues, such as emotions, feelings, moods. Similarly, yet more specifically, the Emotional Contagion Scale of Doherty (1997) operationalizes the construct as the individual's tendency to absorb the five basic emotions of happiness, love, sadness, fear, and anger from others. The scale has been translated into a variety of languages, and information on its reliability and validity is reported by the author.

It is noteworthy that both scales explore emotional exchanges in various situations of an individual's life, yet two main issues can be emphasized. First, the Hatfield and Rapson (1998) and Doherty (1997) scales are not contextualized to work settings. Second, although neuroscientists have acknowledged that EC is bidirectional within the same individual and automatically happens in few milliseconds, to date, self-report investigations on EC in work settings still exclusively rely on these general (i.e., decontextualized) measures, and also focus solely on the perspective of the emotions absorbed (i.e., absorbed) form others. Therefore, a measure of EC that captures how an individual simultaneously experiences the contagion of emotions both absorbed by (EC absorbed) and infected into (EC infected) others, and contextualized in the work setting, is still needed.

Drawing upon the foregoing theoretical background, this article suggests that emotional contagion at work should be studied and measured by a within-individual two-perspective model including the emotions captured from others (EC absorbed) and those infecting others (EC infected). Furthermore, it is suggested to focus on the absorption of specific basic emotions, as proposed by Doherty (1997), rather than measuring an individual general susceptibility to pick up others' emotion. However, in order to contextualize its measurement to work settings, the dimension of love should be excluded from the five basic emotions suggested by the author. Therefore, the current study proposes the Emotional Contagion at Work Scale (ECWS), developed in order to measure the contagion of four discrete basic emotions, that is, joy, sadness, fear, and anger, separately for the two within-individual perspectives of emotions absorbed by others (EC absorbed) and transmitted to others (EC infected). The inclusion of EC infected into others is an additional relevant novelty in extant EC literature in that it allows measurement of an EC facet that, despite its theoretical acknowledgment, has been traditionally overshadowed by the study of EC absorbed by others and thus currently lacks self-report empirical investigation. Based on these arguments, it is hypothesized that:

Hypothesis 1a: Each item of the four dimensions (i.e., joy, sadness, fear, anger) of emotional contagion absorbed will load on the hypothesized latent factor.

Hypothesis 1b: Each item of the four dimensions (i.e., joy, sadness, fear, anger) of emotional contagion infected will load on the hypothesized latent factor.

Finally, in the EC measure proposed in the present study, each item also allows detection of whether the exchange of an emotion presented in a given statement occurs in association with some main organizational stakeholder (i.e., leaders, colleagues, and clients). Therefore, in comparison to the existing EC tools, the new EC scale includes the opportunity to investigate the role of different social paths (i.e., the exchange of emotions with one's leaders, colleagues, and clients) in variously contributing to the spread of joy, sadness, fear, and anger at the work place.

MAPPING EMOTIONAL CONTAGION IN THE WORKPLACE

Two points are addressed in this section: (a) the relevance of mapping emotional contagion in any specific organizational context, and (b) the literature approach to the mapping of EC in workplaces.

Literature suggests that EC spreads among people at work depending on several different factors. For example, frequency and duration of interpersonal contacts with others are suggested to impact emotional contagion and lead to stronger emotional experiences (Morris & Feldman, 1997). Furthermore, the leader–followers interdependence and contacts required to perform the job tasks (e.g., rescue worker squads, sport teams) (Devine, 2002) may foster the levels of intimacy and EC associated with people who are more familiar (Kimura, Daibo, & Yogo, 2008). Finally, contextual factors may affect the emotional display rules that ultimately shape emotional contagion dynamics (Dasborough, Ashkanasy, Tee, & Tse, 2009). Hence, organization is suggested to be a factor when mapping emotional contagion among organizational stakeholders. Although it is beyond the purpose of the current contribution to specifically measure and test the impact of these variables on emotional contagion, it is worth noting that the present investigation is based upon organizations displaying different features with regard to the type of (a) occupational settings and related job task, (b) administration (i.e., private, public), and (c) business field (i.e., not-for-profit, for-profit). Hence, this encourages the examination of how EC is differently associated to leaders, colleagues, and clients in each specific organizational context under investigation.

Scholars typically explore EC dynamics by separately considering dyadic (i.e., two different roles) interactions in work settings. The organizational stakeholders commonly considered in EC studies are employees, clients, and leaders. To date, the study of emotional spirals (Hareli & Rafaeli, 2008) includes (a) employee–customer (Brown & Lam, 2008), or customer–employee (Dallimore, Sparks, & Butcher, 2007) one-way dyadic interactions, (b) emotional exchanges among peers (Barsade, 2002), and (c) downward (Sy, Côté, & Saavedra, 2005) or upward (Hsee, Hatfield, Carlson, & Chemtob, 1990) contagion between leaders and followers.

With regard to the employee–customer dyad, Pugh (2001) found that the display of positive emotion by employees was positively related to customer positive affect. More recently, a study by Du, Fan, and Feng (2010) reported that higher levels of an employee's negative emotional displays led to a greater increase in a customer's negative emotions through the process of negative EC during service failure. On the reverse side of the relationship, during a compliant situation, angry outbursts by consumers can initiate the EC processes, and service providers are susceptible to catching consumer anger through EC (Dallimore et al., 2007). Similarly, employees are likely to be infected by cheerfulness when customers are in a good mood and cheerlessness when customers are in a bad mood (Huang & Dai, 2010).

Moving on to the relationship among peers, group members tend to share emotions, especially when working on highly interdependent tasks (Gallupe, Bastianutti, & Cooper, 1991). The literature on emotional experiences among peers includes the study of affect in a more general sense as compared to EC. For example, Totterdell, Kellet, Teuchmann, and Briner (1998) found that people's mood at work can become linked to the mood of their teammates. Similarly, Ilies, Wagner, and Morgeson (2007) reported that the average affective state of other team members was related to an individual team member's affect over time. Literature specifically focusing on EC defines it as a type of social influence wherein a person influences another person's emotion or behavior (Barsade, 2002). Even emotion (e.g., anger, happiness) expressed by one individual group member using only written communication can spread to other team members and influence group emotion (Cheshin & Rafaeli, 2009). As such, EC represents a direct source of information on how the group is doing and how to achieve common results. Contagion of an individual expression of postperformance celebratory emotions in the context of elite sport teams serves a direct purpose in enhancing future team performance (Moll, Jordet, & Pepping, 2010). Overall, it is worth noting that, to date, investigation on EC experienced by an individual with regard to peers has mainly focused on dynamics among team members, rather than spanning all colleagues with whom a peer happens to interact with at work. Finally, leaders can foster and shape their followers' emotions, as well as being prone to receive contagion from them. This is addressed in the next subsection.

Leadership and Emotional Contagion

Emotion and passion that ensue from a leader's charisma have grounded modern theories of charismatic and transformational leadership, yet affective mechanisms underlying a leader's impact on followers have gone empirically unexamined (Halverson, 2004). During the past decade the research inquiry has increasingly focused on emotional exchanges feeding the leader–follower dyad. In particular, investigation is skewed to downward contagion, namely, the impact of a leader's affect on followers, whereas upward contagion, the transfer of affect from followers to the leaders, is still at the start. Within the framework of downward contagion, empirical findings suggest that a leader's positive and negative affect relates to a follower's mood and affect via EC (Bono & Ilies, 2006; Halverson, 2004). In particular, individuals with leaders in a positive mood experience more positive mood than they do with leaders in a negative mood (Johnson, 2008; Sy et al., 2005). Furthermore, leaders' positive affect and mood infected into followers impact their positive attribution of leadership and their subsequent outcomes at work (Halverson, 2004; Johnson, 2008; Visser, van Knippenberg, van Kleef, & Wisse, 2013).

Moving toward a follower-centric model of analysis, negative emotions that spread to other individuals in the group result in organizational-level disapproval of and cynicism toward the leader (Dasborough et al., 2009). Moreover, further empirical studies suggest that highly neurotic leaders are more susceptible to negative upward emotional contagion, and then perform worse than their more emotionally stable counterparts (Tee, Ashkanasy, & Paulsen, 2011). In particular, positive upward emotional contagion results in improved leaders' performance, whereas negative upward contagion undermines coordination and adversely impacts the leaders' task performance. Additionally, followers tend to express positive affect toward a leader they perceive as being representative of their group and willing to be self-sacrificing (Tee, Ashkanasy, & Paulsen, 2011).

A Multi-foci Holistic Mapping of Emotional Contagion

Voluminous research has documented how emotions can automatically spread through large social settings, thus connecting wide communities by the mean of *epidemic* EC (Hatfield et al., 2014). As alluded to earlier, research on EC in organizational settings is largely based on research inquiry into dyadic relationships between employees, clients, and leaders. In particular, the leader–follower dual studies are mainly characterized by a leader-centric perspective of effective leadership impacted by downward contagion of emotions from leaders to their followers. A multi-foci experience sampling study of Bono and colleagues (Bono et al., 2007) collected employees' emotional experiences associated to their leaders, colleagues, and clients, yet primarily focused on demonstrating the powerful downward role of leaders on their followers' emotions. Another study of Inness and colleagues (Inness, LeBlanc, & Barling, 2008)

investigated employees' anger expressed toward leaders, colleagues, and clients, thus proposing a multi-foci approach and calling attention on people's active role in sending emotions. Yet it primarily focused on the one discrete emotion of anger. To the best of the writers' knowledge, no study has previously examined contagion of four basic emotions, simultaneously involving multiple stakeholders (i.e., leaders, colleagues, and clients), considered both as sources (i.e., EC absorbed) and targets (EC infected) of emotions in organizational settings.

Therefore, rather than specific hypotheses, the following research questions arise when EC absorbed and EC infected are measured (i.e., mapped) in a given organizational context: Will emotions (i.e., joy, sadness, fear, anger) absorbed from others (EC absorbed) be differentially associated to the respondent's leaders, colleagues, and clients? Will emotions (i.e., joy, sadness, fear, anger) infected into others (EC infected) be differentially associated to the respondent's leaders, colleagues, and clients?

METHOD

Sample and Procedure

The overall convenience sample includes six different organizations: two hospitals (public, not-for-profit, frequent contact with clients), a rescue service (public, not-for-profit, frequent contact with clients), a call centre (private, for-profit, frequent contact with clients), a software company (private, for-profit, infrequent contact with clients), and national-level sport teams (private, for-profit, infrequent contact with clients). The survey involved the organizational personnel, not external clients. The research team collected a total of 694 questionnaires (67.9% average response rate). Participants were 50.1% males. Table 1 separately reports the sample description of the six organizations (sample size, response rate, and demographics).

The research team approached organizations' and sports teams' administrators to request their participation in the study. Upon reaching agreement on participation, the research team provided information sessions at each organizational location to describe the project, encourage participation, and address concerns from potential participants. Participation was voluntary and anonymous. The research team distributed questionnaires that participants completed within the same day, or within 2 weeks at the latest, and returned in a sealed envelope to the research team.

Measures

Emotional Contagion at Work Scale (EWCS)

Drawing upon the theoretical background provided, the Emotional Contagion at Work Scale (ECWS) was developed in order to measure the contagion of four discrete basic emotions, namely, joy, sadness, fear, and anger, separately for the two within-individual perspectives of emotions absorbed by others (EC absorbed) and transmitted to others (EC infected). Furthermore, it aimed at measuring the association of emotional contagion experiences with the respondent's leaders, colleagues, and clients with whom s/he relates with at work. To reach this goal, each item requested responses to two different answering scales, as described in more detail later. The 29-item self-report questionnaire measured EC in work settings with regard to the following emotions: joy, sadness, fear, and anger, both absorbed from others (EC absorbed) and infected to others (EC infected). Sample items are as follows.

Emotional contagion absorbed: (a) Joy-Absorbed (four items; e.g., "Interacting with *happy* people makes me feel better when I am a little down"), (b) Sadness-Absorbed (three items; e.g., "I am filled with *sadness* when people talk about personally dramatic experiences"), (c) Fear-Absorbed (five items; e.g., "When I feel someone *is scared*, I also become agitated"); (d) Anger-Absorbed (five items; e.g., "When someone is *angry* and raises their voice, I become irritated").

Emotional contagion infected: (e) Joy-Infected (three items; e.g., "When I am *happy*, those around me are also more content"), (f) Sadness-Infected (three items; e.g., "When I am *sad* I feel as if others also become gloomy"), (g) Fear-Infected (three items; e.g., "When I feel *afraid* while facing a problem, I feel that others also become agitated); (h)

TABLE 1
Sample description for each of the six organizations: Response rate, gender, age, organizational tenure

		Gender		Age		Tenure	
	Response rate	M	F	*M*	*SD*	*M*	*SD*
First hospital ($n = 225$)	39.7%	33.8%	66.2%	38.4	8.4	6.85	6.5
Second hospital ($n = 144$)	46.4%	47.9%	52.1%	46.5	8.0	19.0	11.1
Rescue workers ($n = 125$)	100%	99.2%	0.8%	30.7	3.2	1.4	3.3
Call centre ($n = 72$)	60%	31.4%	68.6%	27.1	7.9	1.92	.75
Software company ($n = 52$)	61.2%	77.6%	22.4%	37.7	7.9	8.2	5.2
Sports teams ($n = 76$)	100%	10.5%	89.5%	23.4	7.8	5.6	5.0

Anger-Infected (three items; e.g., "When I use an *aggressive* tone, I feel that those around me tend to become angry").

Items were randomized in order to avoid response set bias. Respondents were provided a prompt describing the emotional situation as the frame of reference and then were asked to indicate how frequently they experienced the described emotional situations using a 5-point Likert response scale, ranging from 1 as *never* to 5 as *always*. Furthermore, alongside the first answering scale, a second answering scale provided the prompt "It happens with . . . ", and asked to indicate whether the *same emotional situation* (i.e., the same statement/item) occurred in association to leaders, colleagues, and clients. The respondents could check off either one or all or a combination of the three options. The association of emotional contagion to leaders, colleagues, and clients was coded 0 if not checked (i.e., the emotional experience was not associated with the stakeholder), and 1 if checked (i.e., the emotional experience was associated with the stakeholder) by respondents.

With regard to the first answering scale, higher scores of joy, sadness, fear, and anger soaked up from others (EC absorbed) are interpreted to reflect greater absorption of emotional contagion. Instead, higher scores of joy, sadness, fear, and anger transmitted to others (EC infected) are interpreted to reflect greater infection of others with one's experienced emotions. Moving to the second answering scale, higher scores of contagion associated to leaders, and/or colleagues and/or clients, for each emotion absorbed (joy, sadness, fear, and anger) are interpreted to reflect greater absorption of that emotion from people holding that specific role. Instead, higher scores of contagion associated to leaders, and/or colleagues and/or clients, for each emotion infected (joy, sadness, fear, and anger), are interpreted to reflect greater infection of that emotion into people holding that specific type of role.

RESULTS

Psychometric Properties of the Scale

Data from the 5-point frequency answering scale were used to test the dimensionality of the ECWS. Subsequently, items that resulted to be indicators of a latent variable were then used to compute the related mean score of the EC subdimensions. A two-step cross-validation approach (Bollen, 1989) examined exploratory factor analysis (EFA) models within a randomly selected half sample of the data ($N = 322$), and then tested confirmatory factor analysis (CFA) models against the remaining half of the data ($N = 372$). The CFAs used the maximum likelihood as estimation method, by the mean of EQS (Bentler, 1995), and examined the robust statistics for chi squared (Satorra-Bentler Scaled Statistics; Satorra & Bentler, 1988), Non-normed Fit Index (NNFI), Comparative Fit Index (CFI), and root mean square error of approximation (RMSEA). It should be emphasized that analyses on EC absorbed items and on EC infected items must be performed separately, in that both include the same four basic emotions yet underlie two different types of emotional exchange processes.

The EFA on the 17 items of the EC absorbed subscale extracted four factors that provided the best solution. However, one item from fear, one from sadness, and one from anger were dropped due to low factor loadings or lack of loading on the appropriate latent factor. The final 14-item, four-factor solution conformed to expectations, and explained 61.1% of the total variance. The CFA on the second half of the sample further supported the hypothesized four-factor solution, and satisfied multiple goodness-of-fit tests (Hu & Bentler, 1999; $\chi 2(225) = 124.369$, $df = 67$, $p < .001$, NNFI = .91, CFI = .94, RMSEA = .062).

The EFA on the 12 items of the EC infected subscale of emotional contagion extracted three factors that provided the best solution, in comparison to the four expected theoretical dimensions, and merged sadness and fear in the same five-item factor. Furthermore, one item from fear (infected) was dropped due to cross loadings. The final EFA extracted a three-factor solution that explained 63.9% of the total variance. The CFA on the second subsample further supported the three-factor solution, and satisfied multiple goodness-of-fit tests ($\chi 2(333) = 39.572$, $df = 38$, $p < .001$, NNFI = .99, CFI = .99, RMSEA = .011). Overall, Cronbach's alpha of EC dimensions (absorbed and infected) ranged from .83 to .65 (only one alpha value displayed the minimum desirable level of .65; DeVellis, 1991). Taken together, these results provided main support for Hypotheses 1a and 1b.

Descriptive Statistics

The ECWS dimensions emerging from the dimensionality assessment were computed by averaging the items indicators of the latent factors. As alluded to earlier, these dimensions refer to the scores of the first answering scale of the ECWS. Table 2 shows the means of the seven ECWS dimensions (four-factor EC absorbed and three-factor EC infected) within each of the six organizations. Overall, the contagion of joy, both absorbed from and infected into others, was the only dimension over, or closer to, the mean value (3), and displayed the highest mean values. Interestingly, anger transmitted to others (EC infected) was the second dimension with the highest means.

ANOVAs on the Differential Association of Emotional Contagion to Leaders, Colleagues, and Clients

Dummy-coded data from the second answering scale were not designed/used to study the scale dimensionality. Rather, the latent variables (leaders, colleagues, clients) were computed using the same structure emerging from the first answering scale. For example, the four item indicators of Joy-Absorbed were used to compute the mean score of Joy-Absorbed-Leaders, Joy-Absorbed-Colleagues, and Joy-Absorbed-Clients. Hence, the latent dimensions emerging from the second answering

TABLE 2
Means of emotional contagion dimensions in the six organizations

	First hospital	Second hospital	Rescue workers	Call centre	Software company	Sport teams
Contagion absorbed						
Joy	3.27	3.06	3.30	3.07	3.04	3.44
Sadness	2.76	2.76	2.32	2.24	2.36	2.99
Fear	1.97	2.22	1.57	1.73	1.84	2.20
Anger	2.65	2.80	2.01	2.17	2.63	3.01
Contagion infected						
Joy	2.87	2.87	2.95	2.87	2.64	3.02
Sad&fear	1.82	2.26	1.66	1.62	1.75	1.96
Anger	2.25	2.50	1.93	1.76	2.19	2.43

Note. Sad&fear = sadness&fear.

scale were computed by averaging several items and became continuous variables (ranging from 0 to 1). These scores were used to perform the analyses of variance (ANOVAs) presented next.

The following ANOVAs aimed at assessing whether the differential endorsement for each of the three answering options (i.e., leaders, colleagues, clients) was statistically significant. In particular, the analyses aimed at testing the differential association of EC to leaders, colleagues, and clients, respectively, for EC absorbed (i.e., joy, sadness, fear, anger) and EC infected (i.e., joy, sadness&fear, anger), and separately for the six organizations. Given that the answering options are non-independent, the analysis of variance on repeated measures (e.g., non-independent) was used. In order to determine whether the contagion of each of the discrete emotions measured by the ECWS was more associated with colleagues, rather than clients, or leaders, one-way within-subjects analyses of variance (ANOVAs) were conducted with the within-subjects factor being role (i.e., three levels indicating leaders, colleagues, clients) and the dependent variables being the ECWS scores from the second answering scale. Three paired-sample *t*-tests were used to make post hoc comparisons between conditions (levels). Consistent with the theoretical arguments provided for breaking out the mapping of contagion by organization, these analyses were separately performed within each of the six organizations in order to target the level of endorsement within each organization and within each EC dimension. Table 3 shows the detailed results for the 42 ANOVAs (seven EC dimensions per six organizations) and the 126 pairwise post hoc comparisons (three comparisons per 42 ANOVAs) of the effect of role on EC dimensions in the six organizations. In particular, the pairwise comparisons results specifically indicate which dimension is significantly higher (>), or significantly lower (<), or whether the means are not significantly different (*ns*). The mean of each EC dimension is indicated in the square brackets. Additionally, Figure 2 (shown later) shows the aggregated percentages values of EC absorbed (i.e., joy, sadness, fear, anger) and infected (i.e., joy, sadness&fear, anger), respectively associated to colleagues, clients, and leaders within each of the six organizations. This aggregated fashion is provided in order to reach a balance between comprehensiveness and parsimony in visual presentation of results.

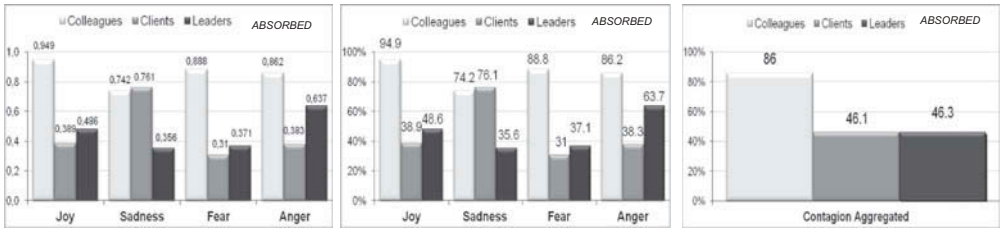
Figure 1 provides an example of the three steps underlying the aggregation of the results. In particular, Step 1 corresponds to the visual presentation of the mean values reported in Table 3 with regard to EC absorbed (i.e., joy, sadness, fear, anger) associated with leaders, colleagues, and clients in the first hospital. Step 2 shows the same values, yet transformed in percentages (i.e., the mean score multiplied by 100) in order to achieve a more clear graphical display. Finally, the scores reported in Step 3 show the same results, yet in an aggregated fashion. That is, all the percentage scores of EC absorbed (joy, sadness, fear, anger) associated to colleagues were averaged. The same was done for EC absorbed respectively associated to clients and leaders.

The 42 ANOVAs on repeated measures were all significant (see Table 3). All 42 paired-sample *t*-tests between colleagues and leaders indicated that colleagues' scores were significantly higher than leaders' scores. Hence, emotional contagion was more frequently associated with colleagues than with leaders. Thirty-six out of the 42 paired-sample *t*-tests between colleagues and clients indicated that colleagues' scores were significantly higher than clients' scores, thus suggesting that emotional contagion was more frequently associated with colleagues in comparison to clients. Finally, 28 out of the 42 paired-sample *t*-tests between leaders and clients indicated that leaders' scores were significantly lower than, or equal to, those of clients, thus suggesting that emotional contagion was more frequently associated with clients in comparison to leaders. Taken together, these results indicate that the differential roles held by colleagues, clients, and leaders do have an effect on how emotional contagion circulates in workplaces. In particular, colleagues appear to have the emotional primacy in the respondents work life. Hence, Hypothesis 2a and Hypothesis 2b were not supported.

TABLE 3
ANOVAs on differences between means of EC (absorbed, infected) associated to leaders, colleagues, and clients, with results by organization

	First hospital	Second hospital	Rescue workers	Call centre	Software company	Sports teams
EC absorbed						
	$F(2, 346) = 197.49^{***}$	$F(2, 174) = 240.45^{***}$	$F(2, 182) = 76.40^{***}$	$F(2, 98) = 53.54^{***}$	$F(2, 86) = 114.07^{***}$	$F(2, 140) = 114.25^{***}$
Joy	Col[.949] > Cl[.389]***	Col[.955] > Cl[.338]***	Col[.886] > Cl[.419]***	Col[.855] > Cl[.445]***	Col[.977] > Cl[.121]***	Col[.958] > Cl[.285]***
	Col[.949] > Le[.486]***	Col[.955] > Le[.223]***	Col[.886] > Le[.427]***	Col[.855] > Le[.325]***	Col[.977] > Le[.390]***	Col[.958] > Le[.539]***
	Cl[.389] < Le[.486]**	Cl[.338] > Le[.223]***	Cl[.419] = Le[.427] (ns)	Cl[.445] > Le[.325]*	Cl[.121] < Le[.390]***	Cl[.285] < Le[.539]***
	$F(2, 366) = 74.86^{***}$	$F(2, 206) = 66.18^{***}$	$F(2, 170) = 32.63^{***}$	$F(2, 86) = 46.15^{***}$	$F(2, 84) = 110.27^{***}$	$F(2, 124) = 180.45^{***}$
Sad.	Col[.742] = Cl[.761](ns)	Col[.692] = Cl[.673](ns)	Col[.802] > Cl[.587]**	Col[.795] = Cl[.648](ns)	Col[.977] > Cl[.198]***	Col[.984] > Cl[.111]***
	Col[.742] > Le[.356]***	Col[.692] > Le[.163]***	Col[.802] > Le[.384]***	Col[.795] > Le[.136]***	Col[.977] > Le[.291]***	Col[.984] > Le[.421]***
	Cl[.761] > Le[.356]***	Cl[.673] > Le[.163]***	Cl[.802] > Le[.384]***	Cl[.648] > Le[.136]***	Cl[.198] = Le[.291] (ns)	Cl[.111] < Le[.421]***
	$F(2, 266) = 127.33^{***}$	$F(2, 142) = 152.08^{***}$	$F(2, 134) = 48.87^{***}$	$F(2, 54) = 52.96^{***}$	$F(2, 70) = 121.26^{***}$	$F(2, 90) = 123.82^{***}$
Fear	Col[.888] > Cl[.310]***	Col[.919] > Cl[.269]***	Col[.848] > Cl[.446]***	Col[.857] > Cl[.384]***	Col[.979] > Cl[.111]***	Col[.924] > Cl[.060]***
	Col[.888] > Le[.371]***	Col[.919] > Le[.253]***	Col[.848] > Le[.365]***	Col[.857] > Le[.241]***	Col[.979] > Le[.329]***	Col[.924] > Le[.489]***
	Cl[.310] = Le[.371] (ns)	Cl[.269] = Le[.253] (ns)	Cl[.446] = Le[.365] (ns)	Cl[.384] > Le[.241]*	Cl[.111] < Le[.329]**	Cl[.060] < Le[.489]***
	$F(2, 340) = 87.32^{***}$	$F(2, 200) = 45.67^{***}$	$F(2, 152) = 40.66^{***}$	$F(2, 78) = 7.29\ p < .01$	$F(2, 74) = 64.89^{***}$	$F(2, 128) = 126.53^{***}$
Anger	Col[.862] > Cl[.383]***	Col[.824] > Cl[.441]***	Col[.830] > Cl[.392]***	Col[.706] = Cl[.631](ns)	Col[.914] > Cl[.167]***	Col[.862] > Cl[.073]***
	Col[.862] > Le[.637]***	Col[.824] > Le[.479]***	Col[.830] > Le[.460]***	Col[.706] > Le[.413]**	Col[.914] > Le[.515]***	Col[.862] > Le[.635]**
	Cl[.383] < Le[.637]***	Cl[.441] = Le[.479] (ns)	Cl[.392] = Le[.460] (ns)	Cl[.631] > Le[.413]*	Cl[.167] < Le[.515]***	Cl[.073] < Le[.635]***
EC infected						
	$F(2, 364) = 156.96^{***}$	$F(2, 194) = 234.44^{***}$	$F(2, 180) = 77.38^{***}$	$F(2, 102) = 83.87^{***}$	$F(2, 88) = 151.15^{***}$	$F(2, 128) = 97.17^{***}$
Joy	Col[.925] > Cl[.446]***	Col[.973] > Cl[.393]***	Col[.890] > Cl[.414]***	Col[.904] > Cl[.429]***	Col[.993] > Cl[.144]***	Col[.979] > Cl[.390]***
	Col[.925] > Le[.381]***	Col[.973] > Le[.158]***	Col[.890] > Le[.344]***	Col[.904] > Le[.231]***	Col[.993] > Le[.267]***	Col[.979] > Le[.359]***
	Cl[.446] = Le[.381] (ns)	Cl[.393] > Le[.158]***	Cl[.414] = Le[.344] (ns)	Cl[.429] > Le[.231]**	Cl[.144] < Le[.267]*	Cl[.390] = Le[.359] (ns)
	$F(2, 228) = 219.50^{***}$	$F(2, 122) = 232.25^{***}$	$F(2, 108) = 66.52^{***}$	$F(2, 32) = 11.74^{***}$	$F(2, 68) = 172.59^{***}$	$F(2, 74) = 264.37^{***}$
Sad&Fear	Col[.936] > Cl[.277]***	Col[.934] > Cl[.289]***	Col[.873] > Cl[.316]***	Col[.788] > Cl[.388]**	Col[.971] > Cl[.054]***	Col[.958] > Cl[.058]***
	Col[.936] > Le[.304]***	Col[.934] > Le[.150]***	Col[.873] > Le[.239]***	Col[.788] > Le[.318]***	Col[.971] > Le[.269]***	Col[.958] > Le[.221]***
	Cl[.277] = Le[.304] (ns)	Cl[.289] > Le[.150]***	Cl[.316] = Le[.239] (ns)	Cl[.388] = Le[.318] (ns)	Cl[.054] < Le[.269]***	Cl[.058] < Le[.221]**
	$F(2, 296) = 180.03^{***}$	$F(2, 180) = 179.26^{***}$	$F(2, 146) = 59.41^{***}$	$F(2, 56) = 18.76^{***}$	$F(2, 80) = 225.56^{***}$	$F(2, 112) = 188.38^{***}$
Anger	Col[.934] > Cl[.305]***	Col[.910] > Cl[.297]***	Col[.845] > Cl[.412]***	Col[.724] = Cl[.586] (ns)	Col[.992] > Cl[.057]***	Col[.936] > Cl[.053]***
	Col[.934] > Le[.360]***	Col[.910] > Le[.223]***	Col[.845] > Le[.234]***	Col[.724] > Le[.207]***	Col[.992] > Le[.269]***	Col[.936] > Le[.345]***
	Cl[.305] = Le[.360] (ns)	Cl[.297] > Le[.223]*	Cl[.412] > Le[.234]**	Cl[.586] > Le[.207]***	Cl[.057] < Le[.269]**	Cl[.053] < Le[.345]***

Note. Sad. = sadness; Sad&Fear = sadness&fear; Col = colleagues; Cl = clients; Le = leaders. The number in square brackets indicates the variable's mean.
$^{*}p < .05$; $^{**}p < .01$; $^{***}p < .001$; *ns* = nonsignificant.



Step 1: Mean values of joy, sadness, fear, and anger absorbed (EC absorbed) associated to colleagues, clients, and leaders.

Step 2: Means multiplied per 100 and transformed in percentages.

Step 3: Averaging of percentages (e.g., Colleagues = (94.9 + 74.2 + 88.8 + 86.2) / 4 = 85.95 rounded up to 86).

FIG. 1. The three steps followed to present EC results in an aggregated fashion (example provided by using data from the first hospital sample).

Additional Analyses

Given the relevance of contextual characteristics to break out the mapping of contagion by organization, the ECWS data also allowed assessment of whether there was a statistically significant difference with regard to contagion of emotions associated with leaders, colleagues, and clients among different organizations. Although these differences could potentially be tested across all six organizations simultaneously,[1] for reasons of parsimony the association of contagion to leaders, colleagues, and clients was statistically addressed with regard to (a) similar organizations displaying different pattern of results (i.e., the two hospitals), and (b) different organizations displaying similar pattern of results (i.e., sport teams and software company). Analyses of variance (ANOVAs) on independent measures (i.e., scores of subjects from different organizations) were conducted with the within-subjects factor being the organization and the dependent variables being the ECWS scores associated to leaders, colleagues, and clients.

When contrasting the first hospital's and second hospital's scores of the seven EC dimensions associated to leaders, all of the seven ANOVAs were significant: respectively, $F(1, 260) = 30.01$, $p < .001$, joy absorbed; $F(1, 286) = 16.13$, $p < .001$, sadness absorbed. $F(1, 204) = 4.87$, $p < .05$, fear absorbed; $F(1, 270) = 10.49$, $p < .01$, anger absorbed; $F(1, 279) = 23.45$, $p < .001$, joy infected; $F(1, 175) = 7.98$, $p < .01$, sadness&fear infected; and $F(1, 238) = 8.27$, $p < .01$, anger infected. In particular, overall EC associated to leaders was significantly lower in the second hospital in comparison to the first hospital, thus confirming a difference between the two similar organizations.

When contrasting the sport teams' and software company's scores of the seven EC dimensions associated to leaders, six out of the seven ANOVAs were not significant: respectively, $F(1, 113) = 4.01$, $p < .05$, joy absorbed,; $F(1, 104) = 2.46$, $p = .120$, sadness absorbed; $F(1, 80) = 3.54$, $p = .064$, fear absorbed; $F(1, 101) = 2.14$, $p = .147$, anger absorbed; $F(1, 108) = 1.58$, $p = .212$, joy infected; $F(1, 104) = 1.75$, $p = .188$, sadness&fear infected; and $F(1, 96) = 1.99$, $p = .162$, anger infected. In particular, overall emotional contagion associated to leaders was mainly the same for the sport teams and software company, thus confirming a similarity between the two different organizations.

DISCUSSION

The goals underlying this study were to (a) propose an expanded conceptualization of emotional contagion (EC), and the accompanying measure, by considering emotions both absorbed by as well as infected into others, and (b) provide a holistic approach to the mapping of EC in work settings by simultaneously exploring the differential association of contagion with leaders, colleagues, and clients. The findings from the present study provided initial support to the validity of the ECWS. Furthermore, the results from the holistic mapping of EC in six different work settings indicated that the differential roles held by colleagues, clients, and leaders did have an effect on how emotional contagion circulates in workplaces. Specifically, the findings revealed that most of the emotions considered for contagion, both EC absorbed and EC infected, were more frequently experienced with colleagues and clients. Interestingly, and contrary to our hypotheses, leaders were the second to the least associated with contagion of emotions in work settings.

The theoretical significance of this study is fivefold. First, findings from the psychometric properties of the ECWS support the validity of this self-report measure of EC absorbed by others and EC transmitted to others. A self-report measure of EC developed in line with a theoretical conceptualization that suggests the simultaneous experience within the individual of emotions soaked up by and infected into others (Hatfield et al., 1994) may disentangle EC simultaneously absorbed and infected during social encounters at work. While EC absorbed was demonstrated to be a four-dimension (i.e., joy, sadness, fear, anger) facet of the bidirectional EC model proposed in the present study, EC infected resulted in a three-dimension structure wherein sadness and fear collapsed into one factor (i.e., joy, sadness&fear, anger). These findings seem to suggest that when people report the emotions they feel coming from others, they distinctively perceive the differential reactions associated with joy, rather than sadness, or fear, or anger.

Logically, the emotion recognition task appears to be easier when reporting emotions directly experienced. Conversely, the report of emotions infected into others is a three-step process, as illustrated in the previous theoretical section, likely yielding a more matte perception of social emotional exchanges. An alternative explanation of the mismatch between the hypothesized factor structure of EC absorbed and EC infected subscales may rely on the items content. However, as per sample items provided, the reader may note that the key emotional wording of the same emotional contagion dimension is similar across the EC absorbed and EC infected perspectives (e.g., *sad* is used for sadness absorbed and infected; *angry* is used for anger absorbed and infected; etc.). Hence, this explanation appears to be less likely. Overall, in spite of a more requiring self-report task asked to the respondents in order to rate the contagion infected into others (EC infected), the findings demonstrate that people distinctively perceive the differential expression of others' emotions that mirror one's own emotions. Finally, the inclusion of a second answering scale allowed assessment of the extent to which the exchange of basic emotions (i.e., joy, sadness, fear, anger), each proposed by specific items, happens in association with leaders, colleagues, and clients. This contextualizes the study of emotional contagion in work settings by mapping the differential association of contagion to the main organizational stakeholders. In other words, the ECWS proved its added value to extant literature by allowing mapping of the role of different social paths, that is, the exchange of emotions with one's leaders, colleagues, and clients, variously contributing to the spreading of emotions at the work place.

Second, the contagion of joy and pleasant emotions, both absorbed by and infected into others, is the most highly reported in all six organizations. Although future research should further assess these findings controlling for possible social desirability bias, the emerging pattern of results is in line with positive psychology emphasizing the relevance of positive experiences and relationships as key factors in order to build thriving individuals and contexts (Seligman & Csikszentmihalyi, 2000).

Third, colleagues are more frequently associated with contagion of all emotions measured in this study, (a) both from the receiver and sender perspective and (b) similarly in all six organizations. Contrary to our hypotheses, leaders are second to the least associated to emotional contagion, depending upon the type of occupational setting and job type under consideration (see Table 3 for detailed organization-based comparison). Although unexpected, the colleagues' primacy of emotional exchanges at work is consistent with, and further extends, the research on one-way EC (absorbed), suggesting that emotional responses are stronger with more familiar/intimate people (Kimura et al., 2008). Arguably, in organizational settings people feel more familiar with their peers (i.e., colleagues) and, likewise, tend to soak up from and instil into them the emotions experienced at work.

Fourth, the findings of leaders being the second to third associated to EC also add to extant literature on leadership. While the emotional primacy of a leader is not to be taken for granted, the marginal role of leaders does not disconfirm the influence and power dynamics embedded in leading actions. Notwithstanding, this study contributes to theory by enlarging the horizon of leadership effectiveness, and positioning the leader–member emotional and relational dynamics within the ground of a realistic, context-specific, and holistic mapping of emotional exchanges among all the major stakeholders at work. Emotions spread automatically, bidirectionally, and do not selectively involve dyads of individuals, but rather span all people interacting in an organizational context. Furthermore, the present study overcomes the caveat of studying the leader–follower(s) dyad in isolation, and demonstrates how a multi-foci relation-based framework may enhance our understanding of the actual emotional ties between leaders and their followers. Also, the holistic approach is proposed as a complementary, not alternative, contribution to ongoing dyadic research.

Finally, results from additional analyses, and further confronting some organizations, provide some inductive reasoning aimed at further developing theoretical building (Locke, 2012) on bidirectional and holistic mapping of emotional contagion. While two organizations from the same occupational setting (i.e., the two hospitals, public, not-for-profit, and requiring personnel to have frequent contact with clients) displayed a different pattern of results, two organizations from different occupational settings (i.e., sport teams and software company) displayed a similar pattern of results. Specifically, in the first hospital the association of emotional contagion to leaders is paired with clients, whereas in the second hospital leaders are the least associated with emotions' circulation (Figures 2a and 2b). According to demographic (i.e., gender, age) and organizational (i.e., tenure) variables available in this study, the second hospital includes older respondents with higher tenure (statistically tested). This should arguably imply that long-lasting interactions may lead to higher familiarity among people, and thus higher likelihood of contagion of emotions with leaders. Additionally, an older public administration may be more likely to be associated with organizational culture requiring formal relationships and high power distance, which contribute to prime the organizational norms that guide the expression of emotions during social encounters at work (Diefendorff & Greguras, 2009; Grandey, Rafaeli, Ravid, Wirtz, & Steiner, 2010). This possibly explains the marginal role of leaders in the emotional exchanges perceived in the second hospital. Similarly, despite the specificities of sport environments (Devine, 2002), results from sport teams (Figure 2f) and a software company (Figure 2e) are similar in that the clients are the least associated to emotional contagion and leaders are the second source/target of contagion. One arguable feature they have in common is the infrequent contact with clients/audience, which likely accounts for the marginal role of clients/audience in the emotional experiences of people working in these two contexts. Consistently, the measurement of frequency and duration of contact (Morris & Feldman, 1997)

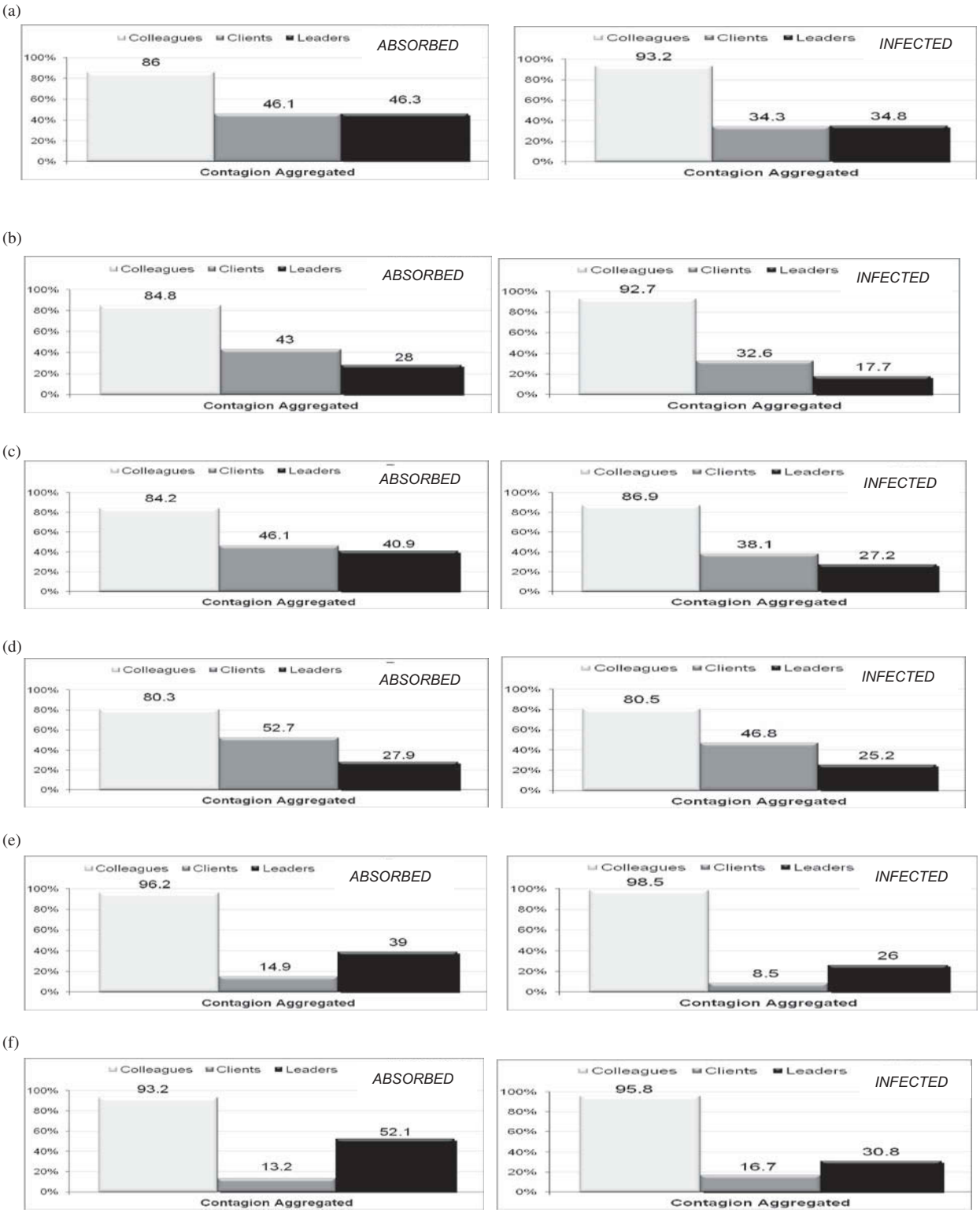


FIG. 2. Percentages of aggregated EC absorbed and EC infected associated to different organizational stakeholders (i.e., leaders, colleagues, and clients) in the six organizations. (a) Percentages of aggregated EC absorbed and EC infected associated to different stakeholders in the first hospital. (b) Percentages of EC absorbed and EC infected associated to different stakeholders in the second hospital. (c) Percentages of EC absorbed and EC infected associated to different stakeholders in rescue workers. (d) Percentages of EC absorbed and EC infected associated to different stakeholders in a call centre. (e) Percentages of EC absorbed and EC infected associated to different stakeholders in a software company. (f) Percentages of EC absorbed and EC infected associated to different stakeholders in national sport teams.

with clients may advance the understanding of the holistic mapping of emotional contagion dynamics. Hence, additional theoretical contributions of the findings from the holistic theoretical model of EC proposed in this article are (a) the relevance of mapping emotional contagion in a given organization in order to contextualize its analysis and intervention, and (b) the necessity of including the role of relational (e.g., frequency and duration of leader–followers contacts; frequency and duration of contacts with clients; level of intimacy with colleagues and leaders; leader–follower task interdependence) and contextual (e.g., culture norms) factors.

Practical Implications

The within-person bidirectional perspective of the EC absorbed and EC infected, and its holistic mapping with regard to leaders, colleagues, and clients proposed in this study, have several implications for practice. To begin with, the profiling results emerging from the ECWS allow people to gain awareness on their own contribution to emotional dynamics (i.e., EC infected) at the workplace, and encourage a shift from solely focusing on the emotions that workers feel because other people have infected them. If we engage an agentic perspective of individuals learning from experience and being able to actively manage their social context (Bandura, 1986), then the holistic mapping of EC with regard to leaders, colleagues, and clients may help to recognize and understand that emotional ambience is co-created by all parties involved in the relationship (Arizmendi, 2011), as well as the differential contribution to emotional dynamics at work played by people holding different roles. Ultimately, awareness of emotion-spreading mechanisms should contribute to the achievement of sustained voluntary change processes and thus shape effective interventions.

Second, the emergence of contagion associated to joy should encourage organizations to engage in strength-based intervention initiatives that aim at empowering individuals and enhancing positive emotional environments. The suggested starting point would be an appreciative inquiry that allows people to report their positive emotional experiences, thus contributing to build positive meaning of work, social connections and exchanges, and constructive environments rooted in optimistic feelings (Sekerka, Frederickson, & Vacharkulksemsuk, 2012). The relevance of joy and how joyful people who infect larger social networks tend to be situated in the center of their local group have already been proven (Christakis & Fowler, 2010) in social settings. However, the relevance of joy transmitted to others (i.e., EC contagion infected) has also been successfully applied to work-related health care settings. In particular, clown therapy, and similar interventions (medical clowning is an interdisciplinary therapeutic art, including multiple humour, drama, music, and dance skills), have proved that both hospital personnel (i.e., physicians, nurses) and freelance professionals may treat the patient's emotional side and positively impact the patient's mood and health (Raviv, 2013).

Third, the present findings suggest implications for leverages aimed at enhancing leadership effectiveness through emotion management. First, interventions could provide leaders with feedback on the results of contagion mapping in order to foster their awareness of their emotional position in comparison to followers and clients. In particular, given the systematic emotional primacy of colleagues in workplaces, leaders should be made aware of that. This implies that an effective leadership action simultaneously includes the managing of emotions that arises between leader and follower(s), as well as the active probing, exploring, understanding, and proactive managing of the emotional exchanges among followers themselves (including, but not limited to, the exchanges that followers have with colleagues from other teams and/or organizational departments). Second, for the case of leaders who are the least associated with EC, action should be taken in order to intervene on the structural (i.e., frequency and/or length) and qualitative (i.e., emotional and relational skills) nature of leader–follower(s) interactions. Interventions could aim at aiding the transition from emotional attunement to empathy (Arizmendi, 2011). This may ultimately contribute to developing leaders' ability to catch emotional signals, use emotional cues to better understand the other person's experience, broaden emotional perception, and sharpen their empathic lens. Overall, this will likely foster their emotional connection with others and the likelihood of entering their emotional orbits. Third, in this study leaders are not mainly associated to negative emotions. On the contrary, leaders are also associated to the positive emotions of joy and cheerfulness. Hence, drawing upon suggestions from positive psychology and broaden-and-build theory (Fredrickson, 2001), leaders may shift their focus on positive feelings during encounters with follower(s), engage a strength-based interpersonal empowerment, thereby contributing to broaden their own, as well as their followers', thought-action repertoire, and build social resources over time (Vacharkulksemsuk, Sekerka, & Frederickson, 2010).

Finally, organizations appointing a holistic scrutiny of EC in their context may subsequently project interventions at the organizational level by providing the top management with feedback on multilevel (i.e., groups, departments, the whole organization) results of the holistic mapping of emotional contagion. This allows for decision making linked to emotion and an integrated system design rooted in consideration for people and the power of emotional bonds that shape achievement and collective synergy. Levers centered on a higher organizational level may be directed to (a) develop culture-related issues that reduce power distance, (b) design structural leader–followers interactions that reduce relational barriers and facilitate leader–member interactions and level of intimacy, and (3) assist leaders with coaching and training on emotion management.

Limitations and Future Perspectives

The study has several limitations. First, there is further room for improvement in the study of construct validity of

the scale, in particular with regard to the sadness dimension of the EC absorbed subscale. Moreover, future investigation may assess convergent validity with regard to well-established measures of emotional contagion absorbed (Doherty, 1997), although this might prove convergent validity only with regard to EC absorbed by others (EC absorbed). Additionally, criterion validity could be assessed with regard to the respondent's performance outcomes, and whether the two roles of employee and supervisor matter differentially for predicting their job specific performance. Second, given the convenience sample used in this pilot study, the findings must be viewed with caution. Nonetheless, the research includes organizations from different occupational settings, private and public administrations, and for-profit and not-for-profit businesses. Furthermore, the consistent pattern of results emerging from the six organizations supports some preliminary conclusions and encourages further investigation in order to (a) further examine the circulation of emotional contagion in additional diverse organizations in order to strengthen the generalizability of results and (b) include possible interpersonal, work design, and contextual factors that may contribute to a better understanding of EC dynamics emerging from a holistic mapping. Third, data are based on self-reports, and common method bias may threaten the validity of the findings. In particular, individuals' emotion-related traits, such as positive and negative affectivity, may impact on perceptions of EC (Barsade, Ramarajan, & Westen, 2009; Johnson, 2008). While this link has some initial evidence with regard to EC absorbed by others (Sy & Choi, 2013), future research on the two-facet EC measured by the ECWS should further explore this relationship also in relation to EC infected into others. Hence, additional studies may include emotion-related traits and social desirability as control variables (Spector, 2006). Fourth, self-reports of emotional experiences used in this study may be affected by recognition and recall biases. For example, results from neuropsychoanalysis investigations suggest that the spontaneous, unintentional, and subjective nature of implicit emotional contagion (Hatfield et al., 1994) may lead some people to mimic a complementary emotion they are exposed to (e.g., smile at angry expressions) by virtue of a defensive reaction (Sonnby-Borgstrom, Jonsson, & Svensson, 2008). To deal with these biases, future studies may use neuroscience experimental designs that apply thermal imaging, eye tracking, and functional magnetic resonance imaging (fMRI) methods for measuring EC both absorbed by and infected into others, as well as experience sampling methodology. Finally, an arguable limitation could be the inclusion of only one positive emotion in comparison to three negative ones. Although this is due to a focus on the five basic emotions in conjunction with the decision to exclude the measurement of love in work settings, future research may extend the investigation of emotional experiences to social emotions, and include additional positive dimensions such as sympathy/liking.

CONCLUSIONS

Results from the present study contribute to disentangle EC simultaneously absorbed and infected during social encounters at work by proposing a self-report measure developed in line with theory suggesting the simultaneous experience within the individual of emotions absorbed by and infected into others. Further, the findings from the holistic mapping of the differential association of EC with leaders, colleagues, and clients suggest that colleagues are more frequently associated with EC of both positive and negative emotions. Moreover, leaders are the second to the least associated to EC, depending on the type of occupational setting under consideration. The study contributes to enlarge the horizon of leadership effectiveness by aiding in positioning the leader–member emotional dynamics within the ground of a context-specific and holistic mapping of emotional exchanges among the major stakeholders at work. Ultimately, the inclusion of contagion infected into others fits an agentic approach aimed at increasing people's awareness of their contributions to emotional dynamics and actively using the emotions experienced to effectively manage relationships at work.

NOTE

1. The results on the 42 ANOVAs on independent samples with post hoc tests referring to the differences among the mean values of each variable for each of the six organizations are available upon request to the first author.

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