

Collective Emotions

Amit Goldenberg¹, David Garcia^{2,3}, Eran Halperin⁴, and James J. Gross⁵

¹Harvard Business School, Harvard University; ²Complexity Science Hub Vienna, Vienna, Austria; ³Medical University of Vienna; ⁴Department of Psychology, The Hebrew University of Jerusalem; and ⁵Department of Psychology, Stanford University

Current Directions in Psychological Science
1–7

© The Author(s) 2020

Article reuse guidelines:

sagepub.com/journals-permissions

DOI: 10.1177/0963721420901574

www.psychologicalscience.org/CDPS



Abstract

When analyzing situations in which multiple people are experiencing emotions together—whether the emotions are positive or negative and whether the situations are online or offline—we are intuitively drawn to the emotions of each individual in the situation. However, this type of analysis often seems incomplete. In many of the cases in which people experience emotions together, there appear to be emergent macrolevel affective processes that cannot be readily captured at the individual level. In this article, we examine these macrolevel affective phenomena, which are termed *collective emotions*. We open with a general review of research on collective psychological processes. We then define collective emotions and discuss their key features. Next, we focus our attention on the emergent properties of collective emotions and map them using three dimensions: quality, magnitude, and time course. Finally, we discuss pressing open questions and future directions for research on collective emotions.

Keywords

emotions, collective psychology, groups, political psychology, collective behavior

On August 9, 2014, a White police officer, Darren Wilson, shot an unarmed Black teenager, Michael Brown, in Ferguson, Missouri. Outrage in response to the shooting escalated quickly, and this widely shared anger was one of the catalysts of Black Lives Matter, a nationwide American social movement calling for racial equality.

When analyzing events such as the Ferguson unrest, we are intuitively drawn to the outrage of each individual member in this movement. However, this type of analysis often seems incomplete. Although individual-level emotional reactions are important to understand, in many of the cases in which people experience emotions together, there are macrolevel affective processes that emerge from the interactions of multiple people. These affective processes cannot be readily captured when one examines the individual level alone because they differ from the individual-level responses in terms of their quality, magnitude, and time course. Such macrolevel affective processes seem to contribute to the unfolding of a variety of collective processes driven by both negative emotions (e.g., collective action, conflicts, polarization, panic, and collective mourning) and positive emotions (e.g., trends, hype, and collective celebrations).

In this article, we examine these macrolevel affective phenomena, termed *collective emotions*. In particular,

we locate collective emotions in the larger context of collective-level psychological phenomena, define collective emotions and discuss their key components, and then show how collective emotions emerge from individual-level emotional interactions.

Collective-Level Psychological Phenomena

Scholars have long been interested in collective-level psychological processes, particularly those involving affective responses. Hegel called them *volksgeist*, “the spirit of the people” (Taylor, 1975). LeBon (1896) and Durkheim (1912) identified these collective emotional responses in religious ceremonies and collective gatherings, and Lewin (1947) pointed to their importance in leading societal and organizational change.

Despite this initial interest in collective-level psychological phenomena in the first half of the 20th century, during the second half of the century, the focus shifted toward individual-level phenomena, with a methodological

Corresponding Author:

Amit Goldenberg, Harvard University, Harvard Business School, Soldiers Field, Boston, MA 02163

E-mail: agoldenberg@hbs.edu

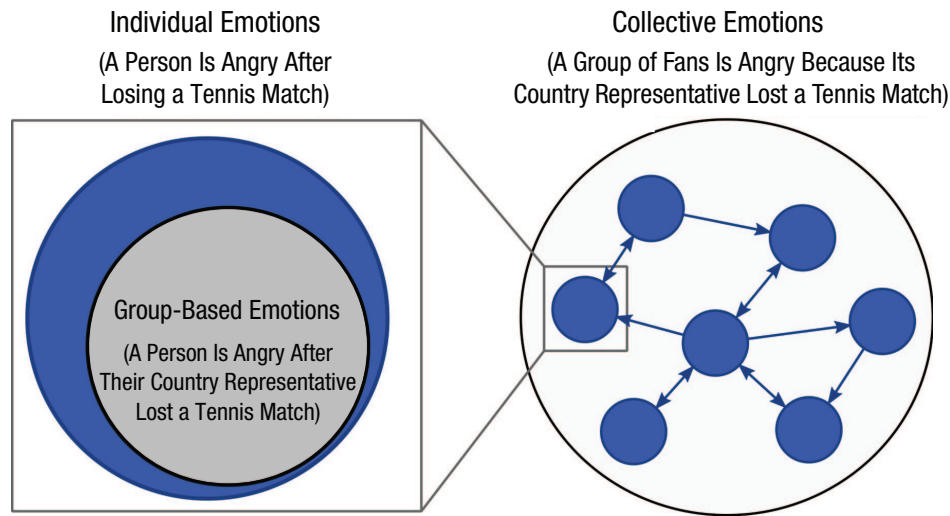


Fig. 1. Individual and collective emotions. Individual emotions include one unique type of individual emotion, namely group-based emotions. Collective emotions are composed of many individual emotions (represented by the smaller circles) that emerge from interactions (represented by the arrows) among individuals who are all responding to the same situation.

emphasis on laboratory experiments. However, in more recent decades, there has been renewed interest in collective-level psychology. This interest is predicated on the idea that unique phenomena emerge as a result of the interactions among multiple agents. We now see evidence for this idea in various areas of psychology, including collective memory (Vlasceanu, Enz, & Coman, 2018), collective intelligence (Woolley, Chabris, Pentland, Hashmi, & Malone, 2010), and collective action (van Zomeren, Leach, & Spears, 2012). The goal of this article is to build on these contributions by mapping growing attempts to understand collective emotions (Bar-Tal, Halperin, & De Rivera, 2007; Huebner, 2011; Menges & Kilduff, 2015; Sullivan, 2014; von Scheve & Ismer, 2013; von Scheve & Salmella, 2014).

Individual, Group-Based, and Collective Emotions

Individual emotions arise as a result of flexible response systems that are engaged whenever situations offer important challenges or opportunities (Tooby & Cosmides, 1990). Individual emotions often involve an abrupt increase in activation that later fades away in an exponential decay, a pattern which differentiates emotions from other affective processes such as moods and stress responses (Gross, 2015).

One unique category of individual emotions that is particularly relevant here is *group-based emotions*. Group-based emotions result from an individual's self-categorization as a member of a social group in response to situations that have perceived relevance for that group (Goldenberg, Halperin, van Zomeren, &

Gross, 2016; Smith & Mackie, 2016a). What differentiates group-based emotions from other individual emotions is that they are experienced by individuals merely as a result of their group membership. For example, avid basketball fans may experience group-based pride when their team wins the championship. Importantly, both group-based emotions and other, nongroup-based individual emotions are emotions that occur at the individual level (Fig. 1a).

Unlike individual and group-based emotions, which are individual-level or microlevel phenomena, *collective emotions* are defined as macrolevel phenomena that emerge from emotional dynamics among individuals who are responding to the same situation (Fig. 1b). This definition emphasizes two main features. The first is emotional dynamics, which are defined as any processes of influence between people's emotions, including emotion contagion, polarization, or even changes in individuals' emotions that occur when they realize that other people feel similar or different emotions (Smith & Mackie, 2016b). The second is the occurrence of emergent properties as a result of emotional dynamics, as discussed in the section below. Our definition, which highlights emotional dynamics (see also Barsade & Gibson, 2012), is slightly different from previous definitions, which have focused mainly on collective emotion being a shared psychological state (Bar-Tal et al., 2007; von Scheve & Ismer, 2013; von Scheve & Salmella, 2014). This is because it is possible to imagine a situation in which an emotion is shared—for example, customers feeling anger in response to being abused by a service company—but there is no collective emotion

because customers are not interacting with each other. However, as soon as these customers have knowledge of each other's emotions, emotional dynamics between them lead to mutual influence and a development of a sense of identity, which contributes to unique macro-level processes that deserve consideration. As an example, put yourself in the shoes of the CEO of the service company. Facing an array of separate individuals who are each upset is completely different from facing a group of clients who are influencing each other's emotions and have a common identity and a shared goal.

As suggested above, group identification usually plays a key role in collective emotions (Tajfel, 1982), either as a driver of these emotions or as their outcome. This is because collective emotions often emerge in response to situations that are relevant to preexisting groups and therefore elicit group-based emotions (e.g., a group of women experiencing anger after watching the abuse of another woman). In such cases, collective emotions are often elicited via a sense of identification with the group, and these emotions then function to help the group achieve its goals. Yet even when collective emotions are initiated within an aggregate of people who do not share any initial sense of identification, as in cases of emergencies or as demonstrated in the example of angry customers, identification frequently emerges as a by-product of the collective emotion (Drury, 2018) and elicits new collective emotions that help groups organize.

Emergent Properties of Collective Emotions

Emotional dynamics among group members give rise to emergent phenomena, that is, features that are not readily apparent at the individual level. Although it may be possible to trace these emergent properties back to each individual emotion by tracking all emotional dynamics between individuals, an exclusive focus on the individual level may lead us to miss interesting phenomena that occur at the collective level (Chalmers, 2006). Exploring these collective-level properties is our focus here, particularly in three domains: quality, magnitude, and time. Our assumption is that these three domains are tightly connected and that they are likely to influence each other. However, we separate them in order to gain theoretical clarity, with the hope that future work will discuss their interactions. To clarify the notion of emergence, we examine how individuals' emotions turn into collective emotions via emotional interactions (Fig. 2).

First, there can be changes in the quality (i.e., the variability and type) of emotional responses. When people interact with each other, they tend to influence

each other's emotions, and this may lead to reduced variability at the collective level (Fig. 2a; von Scheve & Ismer, 2013). The tendency of emotional dynamics to lead to similarity is often explored under the label of *emotion contagion*, which is driven by processes such as mimicry and social appraisals (for a review, see Parkinson, 2011). In other cases, however, collective emotions can be formed by processes other than mere consolidation, in which group members are polarized with respect to each other or to the group as a whole (Del Vicario et al., 2016; Goldenberg, Saguy, & Halperin, 2014). In such cases, there may be increases in variability and thus a change from less variance to more variance. In addition to changes in variability, the type of collective emotions can also change from one type of emotion to another over time as a result of influence processes. For example, after negative emotions are shared on social media following a terrorist attack, positive emotions expressed by some users influence other users to shift their emotional expressions from negative to those of comfort and support (Garcia & Rimé, 2019).

Second, there can be changes in the magnitude of emotional responses (Fig. 2b). At the individual level, the magnitude of emotions is dependent on individuals' construal of relevant stimuli. When emotions are experienced in the presence of other people, they tend to increase in magnitude, either because of emotion contagion between people (Goldenberg et al., 2020) or because people are motivated to communicate their emotions to others (Jakobs, Manstead, & Fischer, 2001). This often means that collective emotions are characterized by increased intensity when experienced along with other individuals. For example, research by Páez and colleagues shows that experiencing emotions with other people leads to stronger activation than does an isolated exposure to the event (Páez, Rimé, Basabe, Włodarczyk, & Zumeta, 2015). In some cases, this increased emotional intensity in the presence of other people results in interesting macrolevel phenomena. For example, in a study of applause patterns, clapping tended to shift in and out of sync, and these shifts were hypothesized to occur because people were motivated to maximize noise (Néda, Ravasz, Brechet, Vicsek, & Barabási, 2000).

Third, there can be changes in the time course of emotional responses. At the individual level, emotions tend to calm down quickly, even in cases of multiple exposures to similar stimuli. But when individuals interact, people who express emotions in response to a certain event tend to activate each other, a phenomena called *emotional cascades* (Alvarez, Garcia, Moreno, & Schweitzer, 2015; Brady, Wills, Jost, Tucker, & Van Bavel, 2017). Emotional cascades reflect the fact that even if people at the individual level calm down, the constant activation of new people helps the collective to maintain

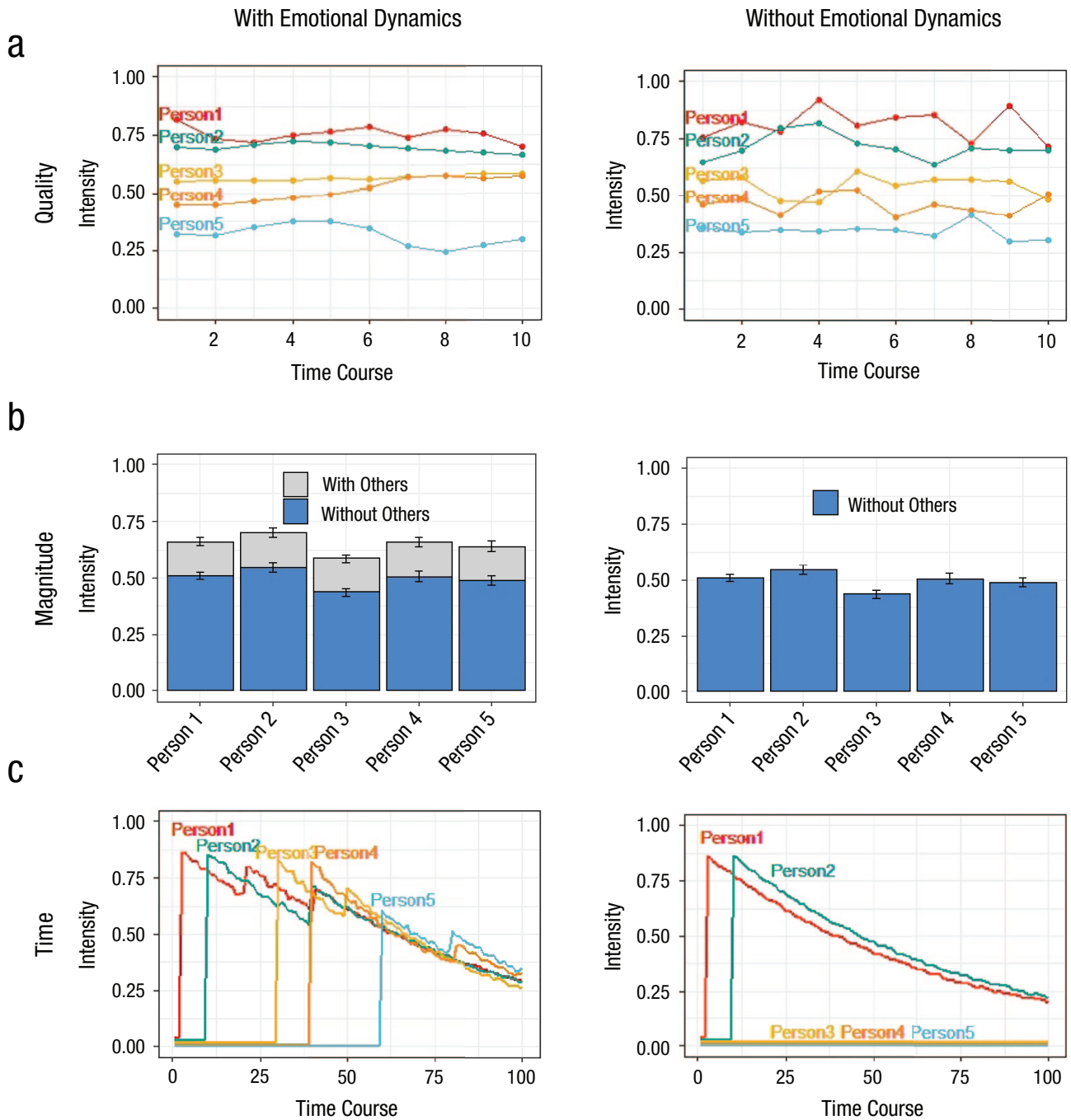


Fig. 2. Emergent properties of collective emotions: quality (with a specific focus on variability), magnitude, and time, exemplified by hypothetical data from a situation in which 5 participants are responding to emotional stimuli either with emotional dynamics (left column) or without any emotional dynamics (right column). The y-axis in all graphs represents the intensity of a specific emotion. Cases in which people influence each other's emotions over time (a) lead to both consolidation and polarization. In cases of amplification (b), the presence of other people contributes to increased emotions. In emotional cascades (c), expression by some people leads other people to express emotions as well, which thus leads to mutual emotional activation.

its intensity. In many cases, this means that although individuals' emotional responses calm down over time, the collective intensity of the group's emotions may actually increase because emotions expressed by some group members activate stronger emotions in people new to the group (Fig. 2c). Tweets in response to the

Ferguson unrest provide one example. As shown in Figure 3, at the individual level, we see a decrease in emotional intensity as the number of tweets participants wrote in the context of the movement increased. Later tweets produced by users were less intense than earlier tweets. At the collective level, on the other hand, when

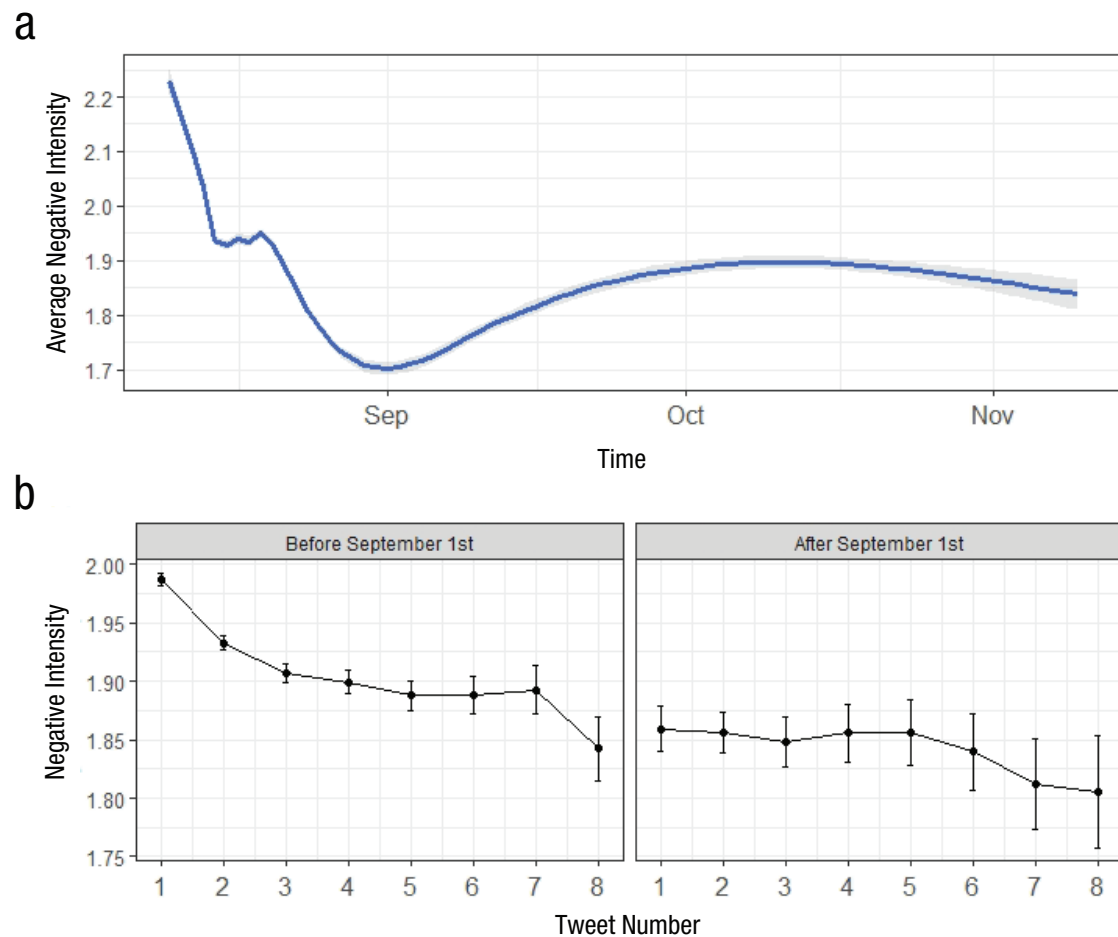


Fig. 3. Emotions expressed in approximately 500,000 tweets in response to the Ferguson unrest. Negative intensity of tweets was evaluated using SentiStrength (Thelwall, Buckley, & Paltoglou, 2012). The mean emotional intensity of all tweets (a) is shown as a function of time. The pattern shows a reduction in negative intensity during August and then an increase in collective emotional intensity from September 1 to the middle of October. Negative intensity (b) is shown as a function of tweet number per individual; data are divided into tweets before and after September 1. As seen in both graphs, users' eighth tweet in response to the incident was less negative than their first tweet, suggesting an emotional relaxation at the individual level. These graphs indicate that emotional patterns are temporally extended at the collective level compared with the individual level.

looking at the mean emotion expressed at each time point, we see a decrease in intensity followed by a 2-month increase in collective emotional intensity. The extended activation seems to occur as a result of emotional cascades: tweets expressed by old users, whose emotions decay, activate new users whose new emotions have stronger intensity, thus keeping the collective system activated. In some cases, collective emotions lead to completely novel temporal dynamics. For example, when people clap their hands in a group—a way to express emotions such as excitement and appreciation—the frequency of their clapping increases over time, something that does not occur when they clap their hands alone (Thomson, Murphy, & Lukeman, 2018). This is thought to be caused by multiple people's desire to anticipate the collective clapping.

Key Questions and Future Directions

Research on collective psychological phenomena is in its infancy, and many questions remain. Here, we highlight three specific questions regarding collective emotions that we think are crucial. These pertain to the methods that allow the evaluation of collective emotions, the outcomes of collective emotions, and whether collective emotions can be regulated.

The first question is how the emergent properties of collective emotions can be measured. One approach is to compare the mean or variance of emotional responses to a certain stimulus between individuals who are each experiencing the emotion separately and those who are experiencing their emotions with other people. Such analyses can be done in online experiments that allow

large numbers of individuals to interact with each other (or not) in predesigned social networks from their home computers (Coman, Momennejad, Drach, & Geana, 2016). In addition to these methods, we can measure bursts of activity or synchronization on digital media (Alvarez et al., 2015; Garas, Garcia, Skowron, & Schweitzer, 2012; Goldenberg et al., 2020). Collective-level emergent properties can be connected with individual-level results of experiments by using agent-based modeling, an approach that has seen recent advances (Garcia & Rimé, 2019).

The second question concerns the outcomes of collective emotions. At the individual level, emotions often lead to actions. At the collective level, emotions often contribute to a variety of collective behaviors, including excitement in response to a certain product (Li & Hitt, 2008) or a social cause (van der Linden, 2017); collective actions (van Zomeren et al., 2012), such as violence; and even wars (Bar-Tal et al., 2007). A few theoretical accounts have noted that when groups pass a certain emotional threshold, action follows (Granovetter, 1978); however, it is not yet clear how to estimate this threshold. Furthermore, in cases in which collective emotion is sustained, it leads not only to action but also to the formation of identity, culture, or an emotional climate (de Rivera, 1992). What type of collective identity, culture, or climate is formed in response to negative collective emotions compared with positive collective emotions? And how do such processes contribute to group behavior? These issues should be examined in future research.

The third question concerns the ability to regulate collective emotions. Some collective emotions lead groups to act in altruistic and productive ways (Baumeister, Vohs, Ainsworth, & Vohs, 2015). In other cases, collective emotions lead groups to violent and destructive outcomes. Can collective emotions be regulated and, if so, how? At the individual level, affective scientists have focused on how emotions can be regulated (Goldenberg et al., 2016; Gross, 2015). We believe that the same questions should be asked for collective emotions. For example, can collective outrage in the context of violent conflicts be reduced? And if so, what are the optimal time points and network locations to target in order to produce the best outcomes? Our hope is that answering such questions will help us find ways to reduce unnecessary and unhelpful collective emotions and to increase potentially useful collective emotions that can contribute to the formation of united and flourishing societies.

Recommended Reading

Chalmers, D. J. (2002). Strong and weak emergence. In P. Clayton & P. Davies (Eds.), *The re-emergence of emergence: The emergentist hypothesis from science to religion* (pp. 244–256). Oxford, England: Oxford University Press.

An examination of the concept of emergence and its different meanings.

Coman, A., Momennejad, I., Drach, R. D., & Geana, A. (2016). (See References). An empirical examination of emergent properties in the context of collective memory.

Huebner, B. (2011). (See References). A philosophical approach to the examination of collective emotions (i.e., can groups have emotions in the same way that individuals do?).

Transparency

Action Editor: Randall W. Engle

Editor: Randall W. Engle

Declaration of Conflicting Interests


The author(s) declared that there were no conflicts of interest with respect to the authorship or the publication of this article.

Funding

D. Garcia's contribution to the manuscript was funded by the Vienna Science and Technology Fund (WWTF) through project VRG16-005.

ORCID iDs

Amit Goldenberg  <https://orcid.org/0000-0002-9417-5682>

David Garcia  <https://orcid.org/0000-0002-2820-9151>

Acknowledgments

We thank Gaurav Suri, Martijn van Zomeren, Bryce Huebner, and Roni Porat for their constructive feedback during the preparation of this manuscript. We also thank Twitter for making the Ferguson data available.

References

- Alvarez, R., Garcia, D., Moreno, Y., & Schweitzer, F. (2015). Sentiment cascades in the 15M movement. *EPJ Data Science*, 4, Article 6. doi:10.1140/epjds/s13688-015-0042-4
- Barsade, S. G., & Gibson, D. E. (2012). Group affect: Its influence on individual and group outcomes. *Current Directions in Psychological Science*, 21, 119–123. doi:10.1177/0963721412438352
- Bar-Tal, D., Halperin, E., & De Rivera, J. (2007). Collective emotions in conflict situations: Societal implications. *Journal of Social Issues*, 63, 441–460.
- Baumeister, R. F., Ainsworth, S. E., & Vohs, K. D. (2015). Are groups more or less than the sum of their members? The moderating role of individual identification. *Behavioral & Brain Sciences*, 39, Article e137. doi:10.1017/S0140525X15000618
- Brady, W. J., Wills, J. A., Jost, J. T., Tucker, J. A., & Van Bavel, J. J. (2017). Emotion shapes the diffusion of moralized content in social networks. *Proceedings of the National Academy of Sciences, USA*, 114, 7313–7318. doi:10.1073/pnas.1618923114
- Chalmers, D. J. (2006). Strong and weak emergence. In P. Clayton & P. Davies (Eds.), *The re-emergence of emergence: The emergent hypothesis from science to religion* (pp. 244–256). Oxford, England: Oxford University Press.

- Coman, A., Momennejad, I., Drach, R. D., & Geana, A. (2016). Mnemonic convergence in social networks: The emergent properties of cognition at a collective level. *Proceedings of the National Academy of Sciences, USA*, 113, 8171–8176.
- Del Vicario, M., Vivaldo, G., Bessi, A., Zollo, F., Scala, A., Caldarelli, G., & Quattrociocchi, W. (2016). Echo chambers: Emotional contagion and group polarization on Facebook. *Scientific Reports*, 6, Article 37825. doi:10.1038/srep37825
- de Rivera, J. (1992). Emotional climate: Social structure and emotional dynamics. In K. T. Strongman (Ed.), *International review of studies on emotion* (pp. 199–218). New York, NY: John Wiley.
- Drury, J. (2018). The role of social identity processes in mass emergency behaviour: An integrative review. *European Review of Social Psychology*, 29, 38–81. doi:10.1080/10463283.2018.1471948
- Durkheim, É. (1912). *The elementary forms of religious life*. New York, NY: The Free Press.
- Garas, A., Garcia, D., Skowron, M., & Schweitzer, F. (2012). Emotional persistence in online chatting communities. *Scientific Reports*, 2, Article 402. doi:10.1038/srep00402
- Garcia, D., & Rimé, B. (2019). Collective emotions and social resilience in the digital traces after a terrorist attack. *Psychological Science*, 30, 617–628. doi:10.1177/0956797619831964
- Goldenberg, A., Garcia, D., Halperin, E., Zaki, J., Kong, D., Golarai, G., & Gross, J. J. (2020). Beyond emotional similarity: The role of situation-specific motives. *Journal of Experimental Psychology. General*, 149, 138–159.
- Goldenberg, A., Halperin, E., van Zomeren, M., & Gross, J. J. (2016). The process model of group-based emotion: Integrating intergroup emotion and emotion regulation perspectives. *Personality and Social Psychology Review*, 20, 118–141. doi:10.1177/1088868315581263
- Goldenberg, A., Saguy, T., & Halperin, E. (2014). How group-based emotions are shaped by collective emotions: Evidence for emotional transfer and emotional burden. *Journal of Personality and Social Psychology*, 107, 581–596. doi:10.1037/a0037462
- Granovetter, M. S. (1978). Threshold models of collective behavior. *American Journal of Sociology*, 83, 1420–1443.
- Gross, J. J. (2015). Emotion regulation: Current status and future prospects. *Psychological Inquiry*, 26, 1–26. doi:10.1080/1047840X.2014.940781
- Huebner, B. (2011). Genuinely collective emotions. *European Journal for Philosophy of Science*, 1, 89–118. doi:10.1007/s13194-010-0006-2
- Jakobs, E., Manstead, A., & Fischer, A. H. (2001). Social context effects on facial activity in a negative emotional setting. *Emotion*, 1, 51–69. doi:10.1037/1528-3542.1.1.51
- Le Bon, G. (1896). *The crowd: A study of the popular mind*. New York, NY: Viking.
- Lewin, K. (1947). Group decision and social change. *Readings in Social Psychology*, 3, 197–211.
- Li, X., & Hitt, L. M. (2008). Self-selection and information role of online product reviews. *Information Systems Research*, 19, 456–474. doi:10.1287/isre.1070.0154
- Menges, J. I., & Kilduff, M. (2015). Group emotions: Cutting the Gordian knots concerning terms, levels of analysis, and processes. *Academy of Management Annals*, 9, 845–928. doi:10.1080/19416520.2015.1033148
- Néda, Z., Ravasz, E., Brechet, Y., Vicsek, T., & Barabási, A. -L. (2000). Self-organizing processes: The sound of many hands clapping. *Nature*, 403, 849–850.
- Páez, D., Rimé, B., Basabe, N., Włodarczyk, A., & Zumeta, L. (2015). Psychosocial effects of perceived emotional synchrony in collective gatherings. *Journal of Personality and Social Psychology*, 108, 711–729. doi:10.1037/pspi0000014
- Parkinson, B. (2011). Interpersonal emotion transfer: Contagion and social appraisal. *Social and Personality Psychology Compass*, 5, 428–439.
- Smith, E. R., & Mackie, D. M. (2016a). Group-level emotions. *Current Opinion in Psychology*, 11, 15–19. doi:10.1016/j.copsyc.2016.04.005
- Smith, E. R., & Mackie, D. M. (2016b). Representation and incorporation of close others' responses: The RICOR model of social influence. *Personality and Social Psychology Review*, 20, 311–331. doi:10.1177/1088868315598256
- Sullivan, G. B. (2014). Collective emotions. *Social and Personality Psychology Compass*, 9, 383–393. doi:10.1111/spc3.12183
- Tajfel, H. (1982). Social psychology of intergroup relations. *Annual Review of Psychology*, 33, 1–39.
- Taylor, C. (1975). *Hegel*. Cambridge, England: Cambridge University Press.
- Thelwall, M., Buckley, K., Paltoglou, G. (2012). Sentiment strength detection for the social web. *Journal of the American Society for Information Science and Technology*, 63, 163–173. doi:10.1002/asi.21662
- Thomson, M., Murphy, K., & Lukeman, R. (2018). Groups clapping in unison undergo size-dependent error-induced frequency increase. *Nature*, 8, Article 808. doi:10.1038/s41598-017-18539-9
- Tooby, J., & Cosmides, L. (1990). The past explains the present: Emotional adaptations and the structure of ancestral environments. *Ethology and Sociobiology*, 11, 375–424.
- van der Linden, S. (2017). The nature of viral altruism and how to make it stick. *Nature Human Behaviour*, 1, Article 41. doi:10.1038/s41562-016-0041
- van Zomeren, M., Leach, C. W., & Spears, R. (2012). Protesters as “passionate economists”: A dynamic dual pathway model of approach coping with collective disadvantage. *Personality and Social Psychology Review*, 16, 180–199. doi:10.1177/1088868311430835
- Vlasceanu, M., Enz, K., & Coman, A. (2018). Cognition in a social context: A social-interactionist approach to emergent phenomena. *Current Directions in Psychological Science*, 25, 369–377.
- von Scheve, C., & Ismer, S. (2013). Towards a theory of collective emotions. *Emotion Review*, 5, 406–413.
- von Scheve, C., & Salmella, M. (Eds.). (2014). *Collective emotions: Perspectives from psychology, philosophy, and sociology*. Oxford, England: Oxford University Press.
- Woolley, A. W., Chabris, C. F., Pentland, A., Hashmi, N., & Malone, T. W. (2010). Evidence for a collective intelligence factor in the performance of human groups. *Science*, 330, 686–688. doi:10.1126/science.1193147