

143. Hatfield, E., Thornton, P., Carpenter, M. & Rapson, R. L. (in preparation). Collective emotions: From *The Madness of Crowds* to Flash Mobs. In E. Madsen & T. Persson (Eds.). *In synch: The synchrony of behavior and emotion in humans and other animals*. New York: Springer

Collective Emotions: From *The Madness of Crowds* to Flash Mobs

Elaine Hatfield, Paul D. Thornton, Megan Carpenter,

and Richard L. Rapson

University of Hawaii

Abstract

Recently, scholars from a wide variety of disciplines, using a variety of innovative scientific techniques, have begun to study emotional contagion. These disciplines include cultural psychology, anthropology, primatology, the neurosciences, biology, social psychology, and history. Primitive emotional contagion¹ appears to be a basic building block of human interaction—assisting in “mind-reading” (allowing people to understand and share the thoughts and feelings of others), and facilitating the coordination and synchronization of those interactions. Such contagion is an important component of empathy.

In this paper we will discuss the many ways people can "mind-read" and feel themselves into others' emotional experiences. We will close by reviewing the direction contagion research has taken in recent years.

Collective Emotions

¹ For brevity's sake, throughout this paper we will simply term this “emotional contagion.”

In May, 2014, hundreds of masked Soviet sympathizers gathered in town squares in Crimea and Eastern Ukraine. The mobs shattered windows in town halls and police stations, took European military observers hostage, and attacked any citizens who dared to disagree with lead pipes and clubs. The angry crowds seemed to rise up from nowhere, their long smoldering grievances exploding into flame. As social commentators such as Kati Marton (2012) has observed about such political madness: “Hate has the power to inflame—and the speed with which it can speed from heart to heart, like fire on a dry bush” (pp. 181).

For centuries, theorists and researchers have been fascinated by the power of collective emotions—by the “madness of crowds,” “hysterical contagion,” “group mind,” and “collective effervescence.” Gustav Le Bon (1895) sparked an interest in the “madness of crowds.” He opined that in a crowd, emotions are contagions, spreading from person to person, as swiftly (and as lethally) as the black death. The “group mind” that emerged in a crowd is, he contended, inherently irrational and implacable. Émile Durkheim (1912/1995) took a slightly different tack. He postulated that collective gatherings spark a “collective effervescence”, a kind of exaltation that promotes transcendent feelings and actions and reaffirms social bonds. Unlike Le Bon, Durkheim insisted that collective effervescence has a positive social function. In religious celebrations, for example, communities’ religious beliefs and values, come to be imbued with powerful affective meanings, thus making them more salient in everyday life.

In 1841, in a book titled *Extraordinary Popular Delusions and the Madness of Crowds*, a Scottish journalist, Charles Mackay, documented the follies that people commit, when swept up in contagious emotion. In the past, the foolhardy have invested

fortunes in alchemy, black tulips (which became so popular in the 1600s that the bulbs were worth more than gold), the great Railway Mania (a scam), and other get rich schemes, only to lose all when the bubble crashed. Generation after generation, patriotic citizens march off to Holy wars, like the Crusades and the Great “war to end all wars,” caught up in misguided patriotic fervor. They engage in witch-hunts and lynch their fellow citizens; only to repent later. Recently social psychologists begun to investigate exactly how the process of collective emotional contagion works.

Emotional Contagion

Defining Emotion. Most social psychologists agree that emotional “packages” are comprised of many components—including conscious awareness; facial, vocal, and postural expressions; neurophysiological and autonomic nervous system activity; and instrumental behaviors. Different areas of the brain process the various aspects of emotion. Yet, because the brain integrates the emotional information it receives, each of its components acts on and is acted upon by the others. Our definition of emotion, then, stresses the importance of all the elements of the emotional “package” in shaping emotional experience and behavior.

Defining Primitive Emotional Contagion. The focus in this chapter will be on *primitive emotional contagion*—a process which is relatively automatic, unintentional, uncontrollable, and largely inaccessible to conversant awareness. Hatfield and her colleagues (1992) defined emotional contagion as:

The tendency to automatically mimic and synchronize facial expressions, vocalizations, postures, and movements with those of another person's and, consequently, to converge emotionally.

The *Emotional Contagion Scale* was designed to assess people's susceptibility to catching joy and happiness, love, fear and anxiety, anger, and sadness and depression, as well as emotions in general. The scale has been translated into a variety of languages—including Finnish, German, Greek, Telugu, Hindi, Japanese, Portuguese, and Swedish.

Mechanisms of Emotional Contagion

There is considerable evidence that the process of primitive emotional contagion occurs in three stages: Mimicry -> Feedback -> Contagion.

Proposition 1. In conversation, people tend to automatically and continuously mimic and synchronize their movements with the facial expressions, vocal productions, postures, movements, and instrumental behaviors of others.

Proposition 2. Subjective emotional experiences are affected, moment-to-moment, by the activation and/or feedback from such mimicry.

Proposition 3. Thus, people tend to "catch" others' emotions, moment-to-moment.

In "The Purloined Letter," Edgar Allan Poe (1915), contended that if people consciously imitate others' facial expressions, they will soon gain an understanding as to what the other is feeling:

When I wish to find out how wise, or how stupid, or how good, or how wicked is any one, or what are his thoughts at the moment, I fashion the expression of my face, as accurately as possible, in accordance with the expression of his, and then wait to see what thoughts or sentiments arise in my mind or heart, as if to match or correspond with the expression (p. 100).

There is considerable evidence that people do in fact tend to feel emotions consistent with the facial, vocal, and postural expressions they adopt. When people mimic expressions of fear, anger, sadness, joy, love, or disgust, they tend to feel not just any emotion (be it positive or negative) but a pale reflection of the *specific* emotions they have mirrored. Scholars from a variety of disciplines provide voluminous evidence that people do in fact frequently catch one another's emotions (see Hatfield, Cacioppo, &

Rapson, 1992; Hatfield, Bensman, Thornton, & Rapson, 2014, for a review of this voluminous research).

Recently, cognitive neuroscientists, chemists, and medical researchers have begun to explore the process of contagion. They have used such traditional methods as electroencephalography (EEG), transcranial magnetic stimulation (TMS), functional magnetic resonance imaging (fMRI), and psychopharmacological, psychoneuroendocrinological, and genetic methods in order to gain some insight into why people so readily “catch” the emotions of others and why it is so easy to be in sync with other people’s thoughts, emotions, and behaviors (Lamm & Silani, 2014). Their discoveries have greatly enhanced our understanding of these processes of collective emotions and empathy. An example:

Mirror Neurons: Rizzolatti (2005) and his colleagues at the University of Parma monitored the brains of macaque monkeys as they performed an action (say, grasping a peanut) *or* watched another monkey performing the activity. They made a fascinating discovery. In the brain, there are two types of neurons: the first, canonical neurons, provide a direct link between perception and action. A second type of brain cell, mirror neurons, responds the same way when monkeys (or humans) perform an action as when they merely witness another performing the same action! Researchers have suggested that these brain structures may well be responsible for “mind-reading” (understanding the intentions of others), emotional contagion, and empathy in humans as in other primates (see Iacoboni, 2005; Rizzolatti, 2005).

Emotional Contagion in Collectives

In the past, psychologists focused almost exclusively attempting to understand

how emotions are transmitted person-to-person. Recently, however, contagion researchers—harking back to classic writings on “collective effervescence,” “the madness of crowds,” “group mind,” and “hysterical contagion”—have started to explore the role of contagion in sparking collective emotions. How might such contagion happen? We naturally assume that the same processes that cause individuals to “catch” one another’s emotions operate in crowds of people. One person (in threatening times) sparks another’s fear and panic, the two of them ignite similar reactions in others, and so forth, until the whole community is aflame. Thus, collectives often come to share thoughts, feelings, and behaviors.

Emotional Contagion: Medical and Demographic Evidence

In recent years, medical researchers have attempted to determine whether traditional mathematical models, developed to predict the spread of infectious diseases, can also be applied to the spread of emotions—such as joy, happiness, and enthusiasm; anxiety; depression and loneliness, and the like. One of America’s most ambitious medical studies is the Framingham Heart Study, which is designed to help clinicians understand the roots of heart disease. Founded in 1948 by the National Heart Institute, the study has followed more than 15,000 American men and women for 50 years. Each year, men and women are given a medical examination—every aspect of their health is assessed: mental, emotional, and physical health. Each time participants are asked: “Who are your parents, your spouse, your children, your siblings, and your friends? Where do they live?” When two social scientists, Nicholas Christakis and James Fowler, heard about this study, they realized they had chanced upon a goldmine. From the Framingham files, they could construct a sociogram, charting people’s social networks, in order to

discover what impact (if any) social networks have on people's mental, emotional, and physical health. Their research soon revealed a surprising finding: people's emotions are as contagious as the most virulent of infectious diseases! Let us review a sprinkling of their research now.

Joy, happiness, and enthusiasm: The World Health Organization has emphasized happiness as a precursor of health. In a study of 5,124 Framingham individuals, the authors constructed a map tracing 53,228 ties between family, friends, and work colleagues. To their surprise, they found that joy and happiness spread through social networks of family, friends, neighbors, and the wider community like a brush fire! Happy people tend to be situated in the center of their local social networks and in large clusters of other happy people. Family and friends matter, but so do friends and friends of friends (Cristakis & Fowler, 2011; Hill, Rand, Nowak, & Christakis, 2010).

Depression and loneliness: Clinicians have long known that anxiety and depression are contagious. Coyne (1976), for example, invited University of Pennsylvania students to participate in a study examining the process by which people get acquainted. Participants were instructed to telephone a woman, located somewhere in Ohio, and chat with her on the telephone for 20 minutes. The woman with whom they chatted was, unbeknownst to them, either known to be depressed or non-depressed. Dealing with someone's depression took a toll. Those who spoke with a depressed woman became aware that she was sad, weak, passive, and in a low mood. They came away from the encounter feeling more depressed, anxious, and hostile than before, and were not eager to talk to her again. Participants who talked to a non-depressed woman naturally did not have such disagreeable reactions. Similar results were found by Haefel

& Hames (2013) and Howes, Hokanson, and Lowenstein (1985).

Contagion has also been found to spark such collective emotions as loneliness (Cacioppo, Fowler, & Christakis, 2009; Cristakis & Fowler, 2011).

Anxiety. Probably most research has been devoted to showing how contagious anxiety is. In the 1960s, Kerckhoff and Back (1968) watched a drama unfold. The first reports on the six o'clock news indicated that a mysterious epidemic had hit a Montana factory:

Officials of Montana Mills shut down their Strongsville plant this afternoon because of a mysterious sickness. According to a report just in from Strongsville General Hospital, at least ten women and one man were admitted for treatment. Reports describe symptoms as severe nausea and breaking out over the body. Indications are that some kind of insect was in a shipment of cloth that arrived from England at the plant today. And at the moment the bug is blamed for the outbreak of sickness (p. 3).

The mysterious illness swept through the plant. In a few weeks, more than 59 women and three men in the 965-person plant were stricken with the mysterious illness, characterized by panic, anxiety, nausea, and weakness. Experts from the U. S. Public Health Service Communicable Disease Center and University entomologists were brought in. The vast textile plant was searched for specimens. The total catch consisted of one black ant, a housefly, a couple of gnats, a small beetle, and one mite. Nonetheless, the plant was fumigated. In the end, scientists concluded that hysterical contagion had sparked the "epidemic".

To find out which workers had been susceptible to such contagion, and why, Kerckhoff and Back (1968) conducted a series of interviews. They talked to those who had fallen ill, to those who had not, and to those who had witnessed the epidemic. They also studied medical records. They came to the following conclusions:

(1) Workers were most likely to catch the “disease” if they were severely stressed at the time the “epidemic” struck. Women were most susceptible if they were experiencing marital problems, if they were responsible for supporting their families, felt trapped, and were overworked and exhausted at the time the epidemic hit. Workers were especially vulnerable if they lacked coping skills. Women did not catch the disease if they did not have the “luxury” of falling ill. Women who had job security quickly succumbed. Women who reported needing a job desperately, who felt insecure about their abilities, were straining to produce, who felt obligated to keep their job at any cost, and were worried about being laid off did not get sick.

(2) Initially, the majority of the victims were social isolates, who had a history of “nervousness” and fainting. Once the panic began to spread, however, workers were most likely to catch the disease if they had close emotional ties with the other “infected” workers. Women who were members of other social groups, social isolates, or outsiders (either because they were black, new at the plant, or because their workstations separated them geographically from the victims) did not get sick. Many such women, in fact, were often so little touched by the epidemic that they were skeptical that an “epidemic” had ever existed.

The story of such epidemics is legion. In a lively text, *Little Green Men, Meowing Nuns, and Head-Hunting Panics: A Study of Mass Psychogenic Illness and Social Delusion*, Bartholomew (2001) itemized the strange and wondrous psychogenic illnesses and delusions humankind is heir to. Anxious people have shown great creativity in conjuring up dire fates that might befall them. In 1984 and 1985, for example, an epidemic of *koro* struck 2,000 men in Guangdong, China. Victims believe that their

genitals, especially their penis, are shrinking and once retraction is complete they would die. People have suffered from fantasies about *Pokémon* TV shows that sickened thousands in Japan, imaginary air raids in Canada, phantom snipers in Esher, England, Ghost Rockets in Sweden, mythical chemical spills, and chemical and biological terrorist attacks. Bogus “epidemics” have been documented worldwide (Chew, Phoon, & Mae-Lim, 1976).

The contagion of obesity: Christakis and Fowler (2011) proposed that social contagion should insure that obesity will spread through a social network, just like viruses spread, because people “infect” others with their perceptions and habits. They examined data from the Framingham Heart Study, described earlier. Among the participants, obesity had increased from 14% in the 1970s to 30% in 2000. Based on their data, they found that the rapid increase in obesity rates was due largely to social network influence. Of course other factors influence obesity, such as access to unhealthy food and a sedentary lifestyle. Nonetheless, it was contagion that was the most powerful determinate of weight. When a Framingham resident became obese, his or her friends were 57% more likely to become more obese, too. Even more astonishing to the authors was the effect didn’t stop there. A Framingham resident was 20% more likely to become obese if the friend of a friend became obese—even if the connecting friend didn’t put on a single pound. Indeed, a person’s risk of obesity went up about 10% even if a friend of a friend of a friend gained weight. The authors’ flamboyant statement: “Your colleague’s husband’s sister can make you fat, even if you don’t know her,” naturally garnered worldwide press attention. In its wake came a few statistical critiques (see Kolata, 2011).

Over the years, Christakis and Fowler (2011) have continued to analyze the

Framingham data, finding more and more examples of contagious behavior. Smoking, they discovered, spreads socially—in fact, a friend taking up smoking increases one's chances of taking up the “filthy habit” by 36%; if you have a three-degrees removed friend who starts smoking, you are 11% more likely to do the same. The researchers (and others, such as Ethan Cohen-Cole and Jason Fletcher (2008), have also found that happiness, altruistic (and selfish) behavior, exercise, acne, headaches, sleep problems, drinking, illegal drug use, depression, loneliness, and divorce are contagious too. Christakis and Fowler (2011) termed this the “three degrees of influence” rule about human behavior: we are tied not just to those around us, but to others in a web that stretches farther than we know. The authors’ research has provoked a great deal of medical research designed to trace the epidemiology of various diseases.

Conclusion

In this chapter we have traced the role of emotional contagion theory in explicating the spread of collective emotions. Early sociologists such as Gustav Le Bon (1896) sparked an interest in the “group mind” and the “madness of crowds.” They explored the process of hysterical contagion in a variety of societies and natural settings.

In the 1970s, however, social psychologists proposed a theory of emotional contagion, focused on individuals rather than crowds. They attempted to pin down the process by which one individual transmits his or her emotions to another person or small group. Today, however, clinicians, psychologists, physicians and epidemiologists, echoing Le Bon, have begun to apply emotional contagion theory to collective emotions and the social contagion of various mental and physical diseases. We concluded this chapter by reporting on the new and compelling research documenting that, under a

variety of conditions, partners and even entire communities may catch their fellows' moods and emotions.

The list of emotions and behaviors subject to contagion is long. It includes joy and happiness, depression, and loneliness; physical problems, such as allergies, obesity, reactions to chemical spills and environmental hazards, and the like; and social and health-related problems, such as smoking, sleep problems, illegal drug use, depression, and divorce. Contagion theory seems to be opening many doors to better understanding human behavior.

References

- Bartholomew, R. E. (2001). *Little green men, meowing nuns, and head-hunting panics: A study of mass psychogenic illness and social delusion*. Jefferson, NC: McFarland.
- Cacioppo, J. T., Fowler, J. H., & Christakis, N. A. (2009). Alone in the crowd: The structure and spread of loneliness in a large social network. *Journal of Personality and Social Psychology*, 97, 977–991.
- Chew, P. K., Phoon, W. H., & Mae-Lim, H. A. (1976). Epidemic hysteria among some factory workers in Singapore. *Singapore Medical Journal*, 17, 10–15.
- Christakis, N. A., & Fowler, J. H. (2011). *Connected: The surprising power of our social networks and how they shape our lives—how your friends' friends' friends affect everything you feel, think, and do*. Boston, MA: Back Bay Books.
- Cohen-Cole, E., Fletcher, J. M. (2008). Detecting implausible social network effects in acne, height, and headaches: longitudinal analysis. *BMJ*, 337, a2533. doi: <http://dx.doi.org/10.1136/bmj.a2533>
- Cook, A. (1974). *The armies of the streets: The New York City draft riots of 1863*. Lexington, KY: University of Kentucky Press.
- Coyne, J. C. (1976). Depression and the response of others. *Journal of Abnormal Psychology*, 85, 186–193.
- Durkheim, É. (1912/1995). *The elementary forms of religious life*. Translated by K. E. Fields. New York: The Free Press (Simon & Schuster.)
- Haefel, G. J., & Hames, J. L. (2013). Cognitive vulnerability to depression can be contagious. *Clinical Psychological Science*, 20, 1-11. doi: 10.1177/2167702613485075.
- Hatfield, E., Cacioppo, J. T., & Rapson, R. (1992). *Emotional contagion*. Cambridge, England: Cambridge University Press.
- Hatfield, E., Bensman, L., Thornton, P. D. & Rapson, R. L. (submitted). New perspectives on emotional contagion: a review of classic and recent research on facial mimicry and contagion.
- Hill, A. L., Rand, D. G., Nowak, M A., & Christakis, N. A. (2010). Happiness and depression as infectious diseases in a large social network: The SISa model. *Proceedings of the Royal Society. B: Biological Sciences*, 277, 3827–3835.
- Howes, M. J., Hokanson, J. E., & Lowenstein, D. A. (1985). Induction of depressive affect after prolonged exposure to a mildly depressed individual. *Journal of Personality and Social Psychology*, 49, 1110–1113.
- Iacoboni, M. (2005). Understanding others: Imitation, language, and empathy. In S. Hurley & N. Chater, *Perspectives on imitation: From neuroscience to social science: Vol. 1. Mechanisms of imitation and imitation in animals* (pp. 77–101). Cambridge, MA: MIT Press.
- Kerckhoff, A.C., & Back, R.W. (1968). *The June Bug: A study of hysterical contagion*. New York, NY : Appleton-Century-Croft s.
- Kolata , G. (August 9, 2011). Catching obesity from friends may not be so easy. *Health . The New York Times*, D. 5.

- Lamm, C. & Silani, G. (2014). Insights into collective emotions from the social neuroscience of empathy. In C. von Scheve & M. Salmela (Eds.), *Collective emotions: Perspectives from psychology, philosophy, and sociology* (pp. 63-77). Oxford, England: Oxford University Press. ISBN: 10: 0199659184.
- Le Bon, G. (1896). *The crowd: A study of the popular mind*. London: Ernest Benn.
- Marton, K. (2012). *Paris: A love story*. New York: Simon and Schuster.
- Mackay, C. (1841). *Extraordinary popular delusions and the madness of crowds* . New York, NY : Harmony .
- Poe, E. A. (1915). The purloined letter. *The tales and poems of Edgar Allan Poe: Vol. III. Tales and poems* (pp. 84–113). New York: G. P. Putnam’s Sons.
- Rizzolatti, G. (2005). The mirror neuron system and imitation. In S. Hurley & N. Chater, *Perspectives on imitation: From neuroscience to social science: Vol. 1. Mechanisms of imitation and imitation in animals* (pp. 55–76). Cambridge, MA: MIT Press.
- Tseng, W-S., Mo, K. m., Li, L. S., Chen, G. Q., Ou, L. W., Zheng, H. B. (1992). Koro epidemics in Guangdong, China. A questionnaire survey. *Journal of Nervous and Mental Disorders*, 180, 117-123.