Articles

Capacity for Empathy and Emotional Contagion in Those With Psychopathic Personalities

Cherie Luckhurst*[a], Elaine Hatfield[a], Claire Gelvin-Smith[b]

[a] Department of Psychology, University of Hawai'i at Manoa, Honolulu, HI, USA. [b] Department of Psychology, University of Alaska, Fairbanks, AK, USA.

Abstract

People with psychopathic traits are sometimes adept at recognizing the emotions of others and using this knowledge in anti-social ways. However, data from incarcerated psychopaths suggest that they are incapable of true empathy. In this paper, we describe three studies that link psychopathic personality to emotional contagion and empathy, and we offer suggestions for reconciling the seemingly conflicting data. While most studies of psychopathic personality assess incarcerated respondents, the resulting data may not be generalizable to non-criminals; participants in these studies were recruited from the general population. The research confirms that empathy and emotional contagion are positively correlated and that each is negatively correlated with psychopathy, as expected. Unique to these studies is the finding that, when instructed, those with psychopathic traits can easily "catch" the emotions of others via the steps of the emotional contagion pathway, thus implying their capacity for empathy. However, without instruction, those with psychopathic traits did not automatically catch others' emotions.

Keywords: empathy, emotional contagion, psychopath, personality disorder, emotion

Most people take it for granted that they know exactly what a psychopath is like. TV crime shows (such as *Sherlock, Criminal Minds, CSI,* and *Dexter*) are filled with portraits of psychopaths—usually charming, manipulative, and deranged men—who understand enough about people to manipulate them but who are also incapable of empathy or compassion. In fact, the psychopath enjoys their suffering. He is generally a killer—often a sexual psychopath and serial killer (Abbott, 2007). Recent evidence, however, suggests that some individuals with psychopathic personalities are capable of leading successful lives, in an apparent contradiction to the common widespread stereotype (Hall & Benning, 2007; Lilienfeld, Watts, & Smith, 2015).

Assessing the Psychopathic Personality

Although descriptions of psychopathic personalities can be found in the commentaries of the ancients, in recent times it was Hervey Cleckley (1976), in his book *The Mask of Sanity,* who sparked interest in defining the concept and understanding its dynamics. Cleckley, a clinical psychiatrist, wrote about 13 fictional characters

who embodied the traits of psychopathy. In 1976, Cleckley listed 16 characteristics that were central to his definition of "psychopath."

These traits were:

1. Superficial charm and good intelligence

2. Absence of delusions

3. Absence of nervousness

4. Unreliability

5. Untruthfulness/insincerity

6. Lack of remorse or shame

7. Antisocial behavior

8. Poor judgment/failure to learn from experience

9. Pathological egocentricity/incapacity for love

10. Poverty in affective reactions

11. Loss of insight

12. Unresponsiveness in interpersonal relations

13. Uninviting behavior

14. Suicide rarely carried out

15. Sexual life impersonal, trivial

16. Failure to follow any life plan (paraphrased from pp. 338-339)

Soon, clinicians, criminologists, and researchers were attempting to develop scales to identify the psychopathic personality. However, it is Robert Hare's (1980) Psychopathy Checklists (PCLs) that are generally considered to be the gold standards in assessing psychopathic characteristics. The PCL family of instruments has evolved over time for use with many populations in many contexts. They were the first instruments to include both personality and behavioral indicators of psychopathy. They focus on four personality conditions: narcissistic personality disorder, borderline personality disorder, antisocial personality disorder, and dissocial personality disorder. In the studies described in this paper, which were conducted with community populations, the authors measured psychopathy with the SRPIII (Paulhus, Neumann, & Hare, 2011). This self-report instrument is intended for non-clinical use and is the least intrusive and least time-consuming measure in the PCL family (see Appendix A).

In a study with a large sample of students (*N* = 602), Neal and Sellbom (2012) found that the data generated by the SRP-III showed "superior fit" to a four-factor model relative to other models (p. 244). In addition, the SRP-III instrument showed good internal reliability and "promising criterion-related, convergent…validity" (p. 248) when predicting scores on conceptually-relevant criteria (such as thrill-seeking, irresponsibility, and aggression) and on conceptually-opposed traits (such as honesty and dependability). It showed weak or non-significant correlation with measures of social avoidance, fearfulness, and shyness, thus indicating discriminant validity.

Neal and Sellbom (2012) conclude that the four factors of the SRP-III align "quite well" with the four-facet model of the PCL-R, but suggest that further research is needed with forensic and correctional samples. Nonetheless, they propose "the Hare SRP could be a good choice of measure to capture psychopathy in a broad range of individuals" (p. 251).

Continuum or Taxon

While the "psychopaths" described in the popular press are radically different from normal people, the vast body of current research contradicts this notion (Clark, 2007). Most analyses describe psychopathy in a manner that is consistent with general personality disorders—they are dimensional constructs that occur along a continuum (see, for example, the research of Hare & Neumann, 2006; Marcus, John, & Edens, 2004; Marcus, Lilienfeld, Edens, & Poythress, 2006; Marcus, Ruscio, Lilienfeld, & Hughes, 2008; Walters, Brinkley, Magaletta, & Diamond, 2008). However, it is important to note that some scholars disagree and describe psychopathy as a discrete taxon—more in line with its TV and literary depictions. The Hare Psychopathy Checklists (PCLs) measure psychopathic traits on a continuum, not discrete categories.

Assessing Empathy and Contagion

In a comprehensive study, Luckhurst (2012, 2014) argued that two personality trait deficits are pivotal to the psychopathic personality: a profound lack of *empathy* and a failure to share others' emotions (i.e. a lack of *emotional contagion* [EC]). She argued that differences in the possession of these traits should be apparent both when we compare those with psychopathic traits to a normal population and when we consider variations within a normal population. Let us now consider these two constructs, empathy and contagion, in more detail.

Empathy

Scholars have defined empathy in a bewildering array of ways. For example:

> "A sense of similarity in feelings experienced by the self and the other…." (Decety & Lamm, 2009, p. 199).

> "The other-focused, congruent emotion produced by witnessing another person's suffering, involve[ing] such feelings as sympathy, compassion, soft-heartedness, and tenderness" (Batson, Fultz, & Schoenrade, 1987, p. 20).

> "An affective response that stems from the comprehension or apprehension of another's emotional state or condition…." (Eisenberg, Fabes, & Spinrad, 2006, p. 647).

Some scholars consider empathy to be a thought process; others describe it as a feeling. Empathy might be an antecedent to interaction or an outcome of interaction. It might come from understanding another's perspective. Or, empathy might be facilitated by an unconscious, automatic response. To address this confusion, Davis (1996) created a model that integrates the definitions described by contemporary theorists. The model is organized by the four components of an empathic event, in rough chronological order: antecedents, processes, intrapersonal outcomes, and interpersonal outcomes. Within any component would be the characteristics that impacted the empathic event; for example, the "antecedent" component might include the person involved and his or her personal biology, history, or knowledge. The antecedent step might also contain the situation and its characteristics, such as the physical setting or emotional climate. Each empathic event would have a different process and outcomes, depending on the characteristics that influenced it. Thus, Davis's model represents the

integration of many perceptions of empathy. Davis and other scholars have called this a multidimensional concept, which he defines simply as "a set of constructs having to do with the responses of one individual to the experiences of another" (p. 12).

In keeping with Davis's inclusive perspective, the authors chose to assess empathy with the Toronto Empathy Questionnaire (TEQ). The TEQ was developed by Spreng and his colleagues (2009), to capture many types of empathic responding (see Appendix B). The TEQ consists of 16 questions that use Likert-style scales to indicate frequency of empathic behaviors (*never*, *rarely*, *sometimes*, *often*, and *always*). The 16 items were extracted from existing self-report measures, including the IRI (Davis, 1996), the QMEE (Mehrabian & Epstein, 1972), the BEES (Mehrabian, 2000), the Hogan Empathy Scale (Hogan, 1969), as well as a few less-known scales, such as the Nursing Empathy Scale (Reynolds, 2000), the Scale of Ethnocultural Empathy (Wang et al., 2003), and the Measure of Emotional Intelligence (Schutte et al., 1998). The resulting 16 questions capture many characteristics that are traditionally associated with empathy, as well as a few newer concepts known to be related or predictive of empathy. The TEQ shows good test-retest reliability, strong construct validity, and high internal consistency. In short, this measure captures the variety of behaviors that are described in the current empathy literature. It is the psychopath's ability to experience empathy—specifically to respond to the experiences of another—that was the principal concern of this paper.

Emotional Contagion

Primitive emotional contagion is a process which is relatively automatic, unintentional, uncontrollable, and largely inaccessible to conversant awareness. Hatfield and her colleagues (1994) 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 (p. 5).

Scholars from a variety of disciplines provide voluminous evidence that people do in fact frequently catch one another's emotions (see Hatfield, Bensman, Thornton, & Rapson, 2014; Hatfield, Cacioppo, & Rapson, 1994 for a review of this research). 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. There is considerable evidence that the process of primitive emotional contagion occurs in three stages: Mimicry **->** Feedback **->** Convergence.

> *Mimicry: People tend to automatically synchronize facial expressions, vocal productions, postures, and movements with those of others.*

> *Feedback: Subjective emotional experiences are generated by the afferent feedback from such mimicry.*

> *Convergence: Thus, people tend to "catch" others' emotions.*

The authors of the three studies in this paper measured contagion with the *Emotional Contagion Scale* (ECS). The instrument was designed by Doherty (1997) to assess people's susceptibility to catching others' emotions (see Appendix C). Responders with high overall scores on the ECS have been shown to possess a high susceptibility to contagion. Scholars in many countries have used the scale to test a variety of hypotheses about the nature of emotion (see, for example: Hietanen, Surakka, & Linnankoski, 1998, who used the ECS Finnish version.) The ECS is the only current measure of primary contagion.

Several researchers have assessed the reliability and validity of the scale. Originally, R. William Doherty (1997) tested the ECS in a three-part study with a large sample of U.S. participants. He established its reliability and explored its factor structure. (Doherty intended a unidimensional structure that would reflect parsimony, but later research established that five factors were the best fit for the data [Lundqvist & Kevrekidis, 2008].) He compared the results of the ECS to the outcomes of a variety of psychological measures to confirm the validity of the EC Scale's construct. In 2006, Lars-Olov Lundqvist tested the factor structure and psychometric properties of the Swedish adaptation of the ECS. He found good test-retest reliability and described the multi-faceted structure of the scale. He later (2008) found a strong correlation between results of the ECS and outcomes of the Temperament and Character inventory (TCI) of Cloninger, Svrakic, and Przybeck, (1993). The TCI measures four dimensions of temperament: novelty seeking, harm avoidance, reward dependence, and persistence, and three dimensions of character: self-directedness, cooperativeness, and self-transcendence. The strong correlation found by Lundqvist between the two measures further confirms the validity of the ECS; Hatfield and her colleagues (1994) predicted that those who sense they are part of community, rather than alone in the world, should be highly susceptible to emotional contagion; Lundqvist (2008) showed this to be true.

Hypotheses

Given the nature of psychopathy, empathy, and emotional contagion, scholars have wondered how they are connected. The popular media promotes the idea that psychopaths have no empathy. As a result, many people in the general public believe this to be true. However, the authors found no empirical evidence to support this. Anecdotes appear widely, especially concerning so-called "successful psychopaths," who live free in the community. Those with psychopathic traits are often portrayed as monsters.

The authors wondered why is this belief is so pervasive, and if it has blocked the progress of social science to finding the truth. Authors set out to find, first, if empathy and psychopathy correlated, either negatively or positively. Next, they considered whether emotional contagion, which appears critical to such emotional responses as empathy and compassion, was correlated with psychopathy. While answers to these questions might contradict "common knowledge" about psychopathy, researchers set up three inquiries to find out. They proposed two hypotheses to test this common knowledge:

Hypothesis 1: emotional contagion and empathy are positively correlated.

Hypothesis 2: psychopathic personality, measured on a continuum, correlates negatively with both empathy and emotional contagion.

Researchers conducted two studies designed to address these two hypotheses. Based on the findings from the two studies, a third study was added to clarify results.

Method and Results

Study 1. Correlation of Empathy and Emotional Contagion (Luckhurst, 2012)

With permission of the University of Hawaii IRB and the consent of participants, Luckhurst (2012) asked students at a University in Hawaii to complete two questionnaires: the Toronto Empathy Questionnaire (TEQ)

and the Emotional Contagion Scale (ECS). Students completed a short demographic measure as well. As is typical of Hawaii's multicultural population, respondents came from a variety of cultural and ethnic backgrounds. They identified their ancestry as African, Chinese, European, Filipino, Hawaiian, Japanese, Korean, Pacific Islander, Samoan, Spanish/Mexican, and Vietnamese. The participants also identified with an array of religious groups and varied markedly in socioeconomic status and educational attainment.

She collected responses from a total of 268 undergraduate students, with 57% being women. Luckhurst found that, as anticipated, EC and Empathy were strongly correlated ($r = .543$, $p \leq .01$), as shown in Figure 1. The r^2 value was .295.
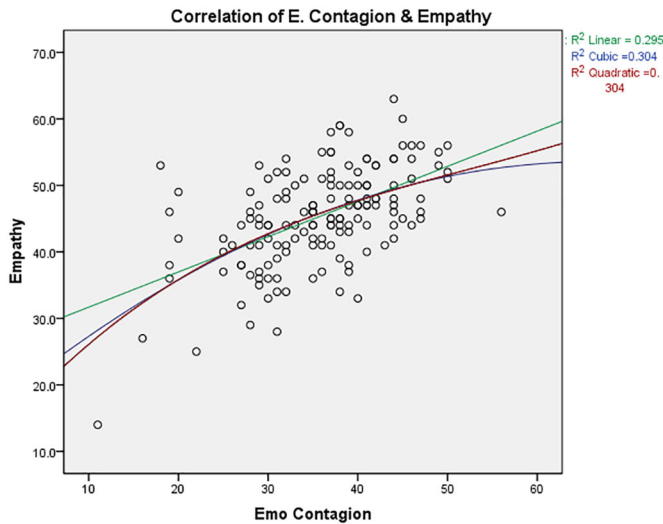

Figure 1. Scatter plot of correlation with curve fit, Study 1, Hawaii.

Overall, Luckhurst's findings reveal the answer to question #1: Emotional Contagion and Empathy are closely and positively linked.

Study 2. Correlations of Empathy, Emotional Contagion, and Psychopathy (Gelvin-Smith, 2015)

The Hawaii study was replicated with a student population in Alaska, where Gelvin-Smith (2015) surveyed students for their propensity for emotional contagion and their ability for empathy. In addition, a third variable was added: psychopathy. The author used the SRP-III to investigate the influence of psychopathy on previously-established correlative findings. She surveyed 86 students who were attending a University in Alaska. Rural Alaska students who were involved in distance education were also allowed to participate in the study. As is typical of the University, participants came from a variety of ethnic and religious groups. Participants were informed of their rights and gave their consent to participate. Protocols were approved by both the University in Alaska IRB and the IRB of the University in Hawaii.

The Questionnaire included a demographic measure, which asked questions about gender, age, cultural identification, duration of U.S. residency, religious or spiritual affiliation, degree of religiosity, highest level of education, and family of origin's educational level. Also included were the Self Report Psychopathy Scale III

(SRPIII) (Paulhus, Neumann, & Hare, 2011), the Toronto Empathy Questionnaire (Spreng, McKinnon, Mar, & Levine, 2009), and the Doherty Emotional Contagion Scale (Doherty, 1997). The three measures were formatted into a survey, which could be accessed through SurveyMonkey.

The results of this study provided strong support for Hypothesis 1; as previously shown by Luckhurst, Empathy and the EC measures correlated strongly with one another; in this case $r = .67$, $p = .01$. The SRPIII instrument was also completed by this set of students. As expected in Hypothesis 2, scores on the psychopathy measure were negatively correlated with both the Empathy Scale ($r = -.29$) and the EC Scale ($r = -.30$). $p = .01$ in both cases (Table 1).

Table 1

Correlations of Contagion (ECS), Psychopathy (SRPIII), and Empathy (TEQ)—Study 2, Alaska

| Measure | Pearson Correlations of Scores | | |
	ECS	SRPIII	TEQ
ECS	--		
SRPIII	-.300**	--	
TEQ	.675**	-.287**	--

Note. N = 85.

**$p < .01$.

Both Studies 1 and 2 used student samples. A third study was undertaken to examine the responses of people in the community.

Study 3, Part 1: Comparisons of High and Low Scorers on the Psychopathy Measure (Luckhurst, 2014).

Luckhurst (2014) recruited 461 participants using Mechanical Turk, a website that pays men and women for performing a variety of tasks, including participating in psychological experiments. IRB permission was granted for this study approach. Participants were informed of their rights and gave consent. Subjects came from every state in the union (via the internet). A full 300 were women (65%). Subjects varied greatly in age (range 18–76 years old; mean = 36.6 years) and ethnicity (including African, Asian, Caucasian, and Hispanic, among others). While 244 (53%) of participants had earned a college degree, 398 participants (86%) had attended some college.

The author first attempted to replicate the findings of Gelvin-Smith (2015) in Alaska. She had subjects complete the Emotional Contagion Scale (Doherty, 1997), the Toronto Empathy Questionnaire (Spreng et al., 2009), and the Self-Report Psychopathy Scale (Paulhus et al., 2011). Her findings (see Table 2) were similar to those in the Alaska study. Empathy and the EC measures correlated strongly with one another ($r = .60$, $p = .01$). The scores for the SRPIII psychopathy measure were negatively correlated with both the TEQ ($r = -.40$) and the ECS ($r = -.26$); $p = .01$ in both cases.

Table 2

Correlations of Contagion (ECS), Psychopathy (SRPIII), and Empathy (TEQ)—Study 2, Alaska, and Study 3, Hawaii.

Measure	Pearson Correlations of Scores				
	ECS	SRPIII	TEQ	*M*	*SD*
ECS	--	-.259**	.601**	53.49	7.17
SRPIII	-.300**	--	-.397**	55.90	12.79
TEQ	.675**	-.287**	--	61.95	7.31

Note. Intercorrelations for Study 3 participants (Hawaii, *n* = 461) are shown above the diagonal, and intercorrelations for Study 2 participants (Alaska, *n* = 85) are shown below the diagonal. Means and standard deviations for each measure are shown in columns to the right of the table for Study 3 (Hawaii); these values are not available for Study 2 (Alaska).

**p < .01.

Next, the author divided respondents into high-psychopathy and low-psychopathy groups. Using a method introduced by Mahmut et al., in 2011, selection depended on the mean and standard deviation of the SRPIII scores. All scores greater than one standard deviation above the mean were considered "high" scores. In this study, *M* = 55.90, *SD* = 12.79, and high scores were those > 68.69. We called this the high-psychopathy set; it consisted of 72 scores that ranged from 69–103. Scores less than one *SD* below the mean (i.e., < 43.11) were called the low-psychopathy set, which consisted of 74 scores that ranged from 30–42. This group is thought to represent "normal" participants. After identifying the 72 high-psychopathy participants and the 74 low-psychopathy participants, the medium group (*n* = 315) was dropped from the sample, leaving the high-psychopathy and low-psychopathy (normal) groups for comparison. (Interestingly, the percent of high-psychopathy participants is quite high in this sample: 15.4%. Estimates from the literature indicate that roughly 0.5% of the general population have high-psychopathy characteristics.)

She proposed two hypotheses:

Hypothesis 1. Those with high-psychopathy personalities will have less capacity for empathy than do their normal counterparts.

Hypothesis 2. Those with high-psychopathy personalities will possess less propensity for overall emotional contagion than do normal people.

Both of these hypotheses received strong support. As expected, the high-psychopathy group showed lower empathy scores than did the low-psychopathy group. This difference was significant at *p* < .001 level, *t*(144) = 6.83. Similarly, those in the high psychopathy group scored lower on emotional contagion than did those in the low psychopathy group. The difference was significant at the *p* < .001 level, *t*(144) = 4.34.

Study 3, Part 2: Comparisons of High and Low Scorers on the Psychopathy Measure (Luckhurst, 2014).

Psychopaths Lack Empathic Ability—but Why?

"Common knowledge" indicates that psychopaths have little empathy. Based on our correlation values, "common knowledge" seems to be true; the higher the level of psychopathy in men and women, the less empathetic and the less likely they are to share others' emotions. Luckhurst (2014) set out to find out *why* this is so.

Primitive emotional contagion has been shown to occur in three stages: Mimicry **->** Feedback **->** Contagion. Luckhurst (2014) conducted a second phase of her study to find out which stage was problematic in the high-psychopathy sample, relative to its low-psychopathy peers. Using the population previously recruited, she artificially broke down the steps of emotional contagion (mimicry, feedback, convergence) into three independent tasks. She tested the following hypotheses:

> Hypothesis 1. High-psychopathy respondents will be less able to mimic facial expressions than their normal peers.

> Hypothesis 2. High-psychopathy respondents will be less able to experience afferent feedback than their normal peers.

> Hypothesis 3. High-psychopathy respondents will experience actual emotional contagion less often than their low-psychopathy counterparts.

Luckhurst continued to work with the same subset of 146 participants derived from the larger sample of 461 recruited from Mechanical Turk. However, during this longer and more effortful portion of the study, several participants withdrew or were released from the study due to technology problems such as software incompatibility or audio limitations. This reduced the number of subjects to 104, with 53 in the high-psychopathy group and 51 in the low-psychopathy group.

Stage 1: Mimicry

To test whether psychopaths were able to identify and mimic others' emotions, she showed them pictures of people expressing one of the six universal emotions: anger, fear, surprise, disgust, happiness, or sadness (Figure 2 and Appendix D). Each participant viewed and mimicked six faces, one face for each emotion. The faces were selected from the NimStim Face Stimulus Set (Tottenham et al., 2009). The NimStim set includes images of male and female faces, and represents Caucasian, Black, Asian, and Hispanic Americans. Emotions, genders, and races of the target faces were randomly varied.

Participants were asked to imitate the targets' facial expressions and hold those expressions for several seconds, following the general protocol established in 1990 by Levenson, Ekman, and Friesen (Appendix E). (We have no way of knowing if participants actually followed the directions or how closely they adhered to them.) Next participants answered several questions, including their degree of success in mimicking, how they went about mimicking, and the degree of ease or difficulty in mimicking. Luckhurst found that her high-psychopathy subjects were every bit as good at mimicking as were low-psychopathy subjects; a t-test indicated no significant difference between high- and low-psychopathy groups, $p > .05$. Therefore, the first hypothesis was rejected; those who scored in the high-psychopathy group *can* respond normally, if instructed to mimic others' emotional displays. Participants also correctly identified emotional expressions on the faces of the targets (a test of Facial Affect Recognition [FAR]) at the same rate as their normal peers, $p > .05$.

Stage 2: Feedback

Hypothesis two tested the afferent feedback mechanism of the high-scoring vs. low-scoring participants. To test this, Luckhurst used the classic Directed Facial Action instructions of Levenson, Ekman, and Friesen (1990). These instructions guided participants through muscle-by-muscle manipulation of their faces. They narrowed their eyebrows, pulled back the corners of their mouths, gritted their teeth, pursed their lips, and so on, to express each of the six universal emotions (see Appendix E). They held an expression for several seconds,

and then they were asked to identify their feeling from a list of emotions. ("I felt nothing" was also a possibility.) The authors have no way of knowing how closely the participants followed the directions in this step.

Once again, high-psychopathy participants showed no significant differences from their low-psychopathy peers in identifying their own emotions (a t-test indicated *p* > .05). Therefore, the second hypothesis was also rejected; high-scoring participants *do have* a normal afferent response, if directed to manually manipulate their own facial displays.

Stage 3: Convergence

Finally, to test hypothesis three, which asked whether high and low-psychopathy participants "catch" others' emotions at the same rate, the author showed each participant seven short video clips. The video clips were selected by undergraduate research students to represent the six universal emotions. Students demonstrated an inter-rater reliability of between 90-100% in their agreement of the emotion that was shown by each clip. The clips showed a person (the "target") or a group ("targets") in a life situation, for example eating a meal, at a sporting event, or talking with a friend (see Appendix F for a representative image from each film clip). Each clip lasted between eight and 15 seconds, and the order of the clips was randomly varied. This task was practiced once and repeated six times, so each participant saw clips of all six universal emotions.

Clips showed the facial expression of only the target(s)—such as jubilant faces in the crowd during 2011's World Series game-six home run—and did not show the facial expressions of others reacting to the target. Hence, the participant had no cues from other responders. After watching a film clip, participants were asked to describe what emotions they felt while watching, and to quantify how strongly they felt the emotions. In addition, they were asked to identify the emotions expressed by the targets as a test of FAR.

It was here, watching emotions that occurred in a natural setting, that the differences between the high-psychopathy respondents and their normal peers emerged. Luckhurst once again found that the high-psychopathy respondents were able to identify others' emotions as well as their low-psychopathy counterparts did, *p* > .05. However, high-psychopathy group simply did not feel the emotions that they saw displayed in the short film clips at the same level as the low-psychopathy group, *t*(102) = 2.695, *p* < .01. These data supported the third hypothesis. In addition, MANOVA testing of three steps on two levels of psychopathy showed non-significant multivariate effects, *p* > .05. However, between-subjects effects were significant, *p* < .01, on the third step of EC, convergence.

Other Findings

Race and Gender Bias — Representations of race and gender were varied throughout this study to minimize effects of bias. The NimStim Facial Stimulus set contained photos representing Caucasian, African, Asian, and Hispanic individuals and male and female genders (examples in Figure 2). Six photos were used for each of six emotions, for a total of 36 photos. Races and genders were similarly varied in the video clips (see Appendix D for photos and Appendix F for video clips). Appropriately, analysis of variance revealed that neither race nor gender nor their interaction affected EC scores significantly, *p* > .05.

Angry (closed mouth)   Angry (opened mouth)   Fear (closed mouth)   Fear (opened mouth)

Figure 2. Example photos from the NimStim Set of Facial Expressions (Tottenham et al., 2009).

Ingroup/Outgroup Bias — Protocols for Stage 1 and Stage 3 (of Study 3) contained questions from the Social Distance Scale (Byrne, 1971) to check for in/out-group perceptions. This study found no differences between high-psychopathy and low-psychopathy respondents to questions that asked whether they could be friends with targets in the photos and videos, or whether the targets would fit into respondents' social groups. No patterns arose connecting respondents to targets of their own race or gender.

Discussion

In the second part of study three, the author artificially isolated the three steps of emotional contagion to identify which step(s) was unsuccessful for people with high-psychopathy personalities compared to low. If our methods measured the intended behaviors, then in two of the three steps, high-psychopathy respondents performed with no significant differences from their normal counterparts. However, in the third step, the high-psychopathy participants simply did not converge without prompting. This finding is consistent with "common knowledge" about psychopaths—they did not "catch" the emotions of others.

A number of explanations are possible for these interesting findings.

Susceptibility to Contagion

First, Hatfield and her colleagues (1994, p. 148) itemized factors that may determine people's susceptibility to contagion (in general).

1. Their level of attention to others

2. Their sense of being interrelated to others rather than being independent

3. Their ability to read others' emotions (including voice, gestures, postures)

4. Their ability to mimic

5. Their awareness of their own emotional responses

6. Their level of physiological (autonomic) response

Any of these factors could influence the vulnerability of a mentally healthy person to contagion; these factors are likely to influence those with highly-psychopathy personalities as well. Of all the factors listed, the one most likely to have influenced the study three participants is factor number two: the sense that they are connected with others rather than independent. This factor was not tested in the study. All other characteristics listed here were measured, manipulated, or controlled. Thus, we suspect the five other characteristics are not responsible for the differences we found. We further hope that the sense of interrelationship felt by those with psychopathic characteristics will be investigated in future research.

Social Psychologists, aware of the weakness of any one method, recommend that scholars try triangulation—testing one's theories with different populations, using slightly different assessment techniques, and employing a variety of dependent variables. In the Studies 1-3 (above) we used community and student populations, classified them as psychopathic or non-psychopathic using the SRPIII (a self report measure) and assessed our dependent variables with the Toronto Empathy Questionnaire (TEQ) and the Emotional Contagion Scale (ECS). In an effort to triangulate, we searched for other studies investigating questions similar to our own. We found many. In the following neuroscience studies, scholars studied prison populations, classified prisoners as psychopathic/non-psychopathic by a variety of techniques, and used fMRI techniques to assess psychopaths' ability to empathize with others and catch their emotions. Luckily, they came to the same conclusions we did.

Neuroscience Investigations

Neuroscientists have begun to try to discover psychopaths' exact biochemical deficiencies. Several recent studies have assessed brain glucose activity using fMRI techniques, including assessing the neural activity of psychopaths. Many scientists have noted a lack of activity or disrupted activity in the amygdalae of psychopaths (see, for example Cima, Tonnaer, & Hauser, 2010; Glenn, Raine, & Schug, 2009; Marsh & Blair, 2008). Abnormal activity is especially high when psychopaths are asked to consider moral dilemmas. However, Cima and colleagues found no differences in judgments that result from this abnormal amygdala activity. As a result, those authors reject the hypothesis that emotional processes are causally necessary for judgments about moral dilemmas. Instead, they suppose that moral judgment might occur first, followed by emotional decision-making. As a result, they conclude that while psychopaths show good moral judgments, they are unable to rely on emotions to implement them.

Wilson, Juodis, and Porter (2011) point out that previous studies on facial affect recognition by psychopaths have produced conflicting results. They noted that emotion-processing deficits could not always be traced to amygdala dysfunction. These authors suggest that while the amygdala itself may not be impaired, its activation might in some way contribute to a left-brain mechanism that is dysfunctional, resulting in difficulty in information processing, including cognitive processes.

According to Kosson, Suchy, Mayer, and Libby (2002), psychopaths may have difficulty with left-hemisphere resources in general. The authors noted that some psychopaths use the right brain to process language-related information, a process that usually occurs in the left brain in healthy people. Right brain processing is likely inadequate, slow, and awkward, thus rendering those with psychopathic personalities able, but inefficient, at processing such information. Dolan and Fullam (2006) also found much slower recognition time for facial expressions by criminals with antisocial personality disorder relative to non-criminal healthy men. The influence of the amygdala and the use of right-brain versus left-brain processes may well explain why the autonomic emotional contagion process does not occur in psychopaths as it does in normal subjects.

Recently, a fascinating study conducted by Meffert and colleagues (2013) revealed more precise differences between normal and psychopathic neurology. In research conducted in the Netherlands, the authors used fMRI to compare the brain activity of non-psychopathic controls with that of criminal psychopaths. Participants watched video clips of hands interacting to indicate emotions (e.g., caressing, slapping). Resulting brain activity in criminal psychopaths was much lower than the brain activity in control subjects, especially in regions of the brain known to be connected to empathy (including temporal, insular, parietal and frontal lobe regions).

However, when participants were instructed to empathize when watching the videos, differences in brain activity between the two groups were reduced. Authors conclude that "psychopathy is not a simple incapacity for vicarious activations but rather reduced spontaneous vicarious activations…" (p. 2550).

The studies reviewed in our paper were conducted in a natural setting, outside of the fMRI lab, yet the results were similar; response differences between those with high-psychopathy characteristics and control subjects were reduced when participants were prompted. The studies also suggest that psychopaths at large in the community respond in a manner similar to criminal psychopaths who are incarcerated.

Attention Deficit Disorders

Two recent papers suggest yet another reason why psychopaths may be unable to converge emotionally with others. Both papers discuss a type of attention deficit in psychopaths, which makes them easily distracted from the information necessary to understand others. Dadds and his colleagues (2012) found that children with oppositional defiant disorder, who tested high for Factor 1 (callous-unemotional) characteristics of psychopathy, showed low levels of eye contact and low levels of affection toward their mothers. The authors suggest, "psychopathic disorder begins as a failure to attend to the eyes of attachment figures" (p. 191). In an earlier study, Dadds et al. (2006) found that facial affect recognition (FAR) problems could be reduced or eliminated by instructing psychopaths to focus on the eye region of the target's face. While Luckhurst's participants did not struggle with FAR, their emotional convergence might have been deterred by lack of eye contact.

Sadeh and her colleagues (2013) argued that each psychopathy factor is associated with distinct cognitive and emotional deficits. The authors found that psychopathic individuals differed in their ability to process emotions and maintain attention according to their dominant (most high-scoring) factor. For example, the affective-interpersonal factor (Factor 1) was associated with enhanced sensitivity to positive stimuli. Participants showed increased error rates on cognitive tasks when positive distracters (words) were present. The social deviance factor (Factor 2) was associated with increased behavioral interference to both positive and negative stimuli, which resulted in delayed reaction times on cognitive tasks. This finding supports previous research that indicates that high Factor 2 individuals are "particularly sensitive to emotional context" (p. 291). In addition, the authors found that these deficits were interactional, not merely additive, in individuals who scored high in both factors. The authors conclude that each psychopathy factor may indicate predictable dysfunction in cognitive and affective processes. Further research may clarify whether emotional contagion is affected by one factor of psychopathic personality over another.

Limitations of This Work

The authors recognize that study three has several limitations. They include our use of Mechanical Turk as a research platform, the unanticipated self-conciousness of participants in the mimicry and afferent feedback steps of Study 3, and the lack of validation of the method of isolating steps of emotional contagion.

1. **Use of an Untested Method**

    In isolating the steps of emotional contagion, we created steps that we believed were reasonable replications of events that occur involuntarily, leading to emotional convergence. We also believed that participants would follow our directions. However, our method has not been validated and we have no direct evidence that either belief is true. For example, in step one, participants were asked to mimic

expressions they saw on faces in photos. Although responses from the participants indicate they did so, we have no direct evidence that this is true, or that the mimicry task is reasonable replication of mimicry as it would occur naturally.

2. Mechanical Turk (MTurk)

Many workers ("Turkers") use MTurk as a source of income, and they are motivated to participate in studies that pay for participation; we are not sure how this motivation might have affected recruiting or responses. Based on the demographic information that we collected, we know that this sample of Turkers differed from the general US population in their levels of education (higher) and age (lower) as well as its proportion of women participating (higher) relative to their proportion in the general population.

3. Self-Consciousness

We did not anticipate the influence of self-consciousness on the study data. Several participants commented that they felt "silly" or "stupid" making the faces to complete the mimicry and afferent feedback tasks (Steps 1 and 2). While most participants were not in public places, some were around people: usually family members or roommates. Their consciousness of others may have negatively influenced their participation. That is, greater privacy probably would have increased their abilities to mimic and experience feedback, thus increasing their experience of emotional contagion.

Conclusion

In conclusion, we consider these new studies to offer evidence that "common knowledge" of reduced empathy in psychopaths appears to be true. However, we believe it was not the lack of *capability* to complete the cascade of steps that lead to emotional contagion that leads to the inability for empathy. Rather the lack of focus or lack of connectedness felt by the psychopath that leads to the reduced feelings. In Study 3, the direction provided by Luckhurst's protocol artificially focused participants on important cues that made the difference in performance between those with psychopathic traits and those without. The authors speculate that while those with psychopathic traits are able to catch others emotions, they do not do so if undirected. This speculation is supported by studies of patients on the Autism Spectrum who are known to pay little attention to the emotions of others naturally, but who are able to attend, identify, and understand others' emotions when prompted (see Evers, Kerkhof, Steyaert, Noens, & Wagemans, 2014; Sawyer, Williamson, & Young, 2012; Zager, Alpern, & Boutot, 2009). Many published studies provide insight in to the complex interplay of abilities and disabilities that shape the psychopath's cognitions, emotions, and behaviors. This same complexity was found in our studies.

While neuroscientists explore psychopaths' biochemical characteristics, perhaps social scientists will further investigate the processes at work in the emotional responses of those with psychopathic traits to social stimuli. We hope the popular media and, in turn, the general public will begin to recognize psychopathic personality as an emotional disorder and relinquish the easy stereotype of psychopath-as-monster.

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Competing Interests

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Author Note

Cherie Luckhurst is now with the Center for Health Information and Communication, U.S. Department of Veterans Affairs, Veterans Health Administration, Health Services Research and Development Service CIN 13-416, Richard L. Roudebush VA Medical Center, Indianapolis, Indiana.

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Appendices

Appendix A: Representative questions from the Self Report Psychopathy Scale III Short Form (SRP–III SF)

Instructions: Rate the degree to which you agree or disagree with the following statements. Use numbers to represent your level of agreement: 1= strongly disagree, 2 = disagree, 3 = neutral, 4 = agree, and 5 = strongly agree.

1. I have never been involved in delinquent gang activity.

2. I don't bother to keep in touch with my family any more.

3. I rarely follow the rules.

4. You should take advantage of other people before they do it to you.

Paulhus, Neumann, and Hare (2011).

Appendix B: The Toronto Empathy Questionnaire

To answer the following questions, use a scale where 0 = never, 1 = rarely, 2 = sometimes, 3 = often, and 4 = always.

1. When someone else is feeling excited, I tend to get excited, too.

2. Other people's misfortunes do not disturb me a great deal

3. It upsets me to see someone being treated disrespectfully

4. I remain unaffected when someone close to me is happy

5. I enjoy making other people feel better

6. I have tender, concerned feelings for people less fortunate than me

7. When a friend starts to talk about his/her problems, I try to steer the conversation towards something else

8. I can tell when others are sad even when they do not say anything

9. I find that I am "in tune" with other people's moods

10. I do not feel sympathy for people who cause their own serious illnesses

11. I become irritated when someone cries

12. I am not really interested in how other people feel

13. I get a strong urge to help when I see someone who is upset

14. When I see someone being treated unfairly, I do not feel very much pity for them

15. I find it silly for people to cry out of happiness

16. When I see someone being taken advantage of, I feel kind of protective towards him/her

Spreng, McKinnon, Mar, and Levine (2009), p. 70-71.

Appendix C: EC Sale

Rate how often you feel or act in the way described. Use a scale of 0 = never, 1 = rarely, 2 = sometimes, 3 = often, and 4 = always.

1. If someone I'm talking with begins to cry, I get teary-eyed.

2. Being with a happy person picks me up when I'm feeling down.

3. When someone smiles warmly at me, I smile back and feel warm inside.

4. I get filled with sorrow when people talk about the death of their loved ones.

5. I clench my jaws and my shoulders get tight when I see the angry faces on the news.

6. When I look into the eyes of the one I love, my mind is filled with thoughts of romance.

7. It irritates me to be around angry people.

8. Watching the fearful faces of victims on the news makes me imagine how they might be feeling.

9. I am happy and content when the one I love holds me close.

10. I get tense when overhearing an angry quarrel.

11. Being around happy people fills my mind with happy thoughts.

12. I sense my body responding when the one I love touches me.

13. I notice myself getting tense when I'm around people who are stressed out.

14. I cry at sad movies.

15. Listening to the shrill screams of a terrified child in a dentist's waiting room makes me feel nervous.

Luckhurst adapted from Doherty (1997), p. 136.

Appendix D: Sample Photos from the NimStim Set of Facial Expressions

Angry (closed mouth)   Angry (opened mouth)   Fear (closed mouth)   Fear (opened mouth)

Surprise   Sad (closed mouth)   Sad (opened mouth)   Happy (closed mouth)

Sample photos from Tottenham, et al. (2009). The NimStim Set of Facial Expressions. (Work funded by the MacArthur Foundation.)

Appendix E: An Excerpt from Directed Facial Action Instructions (revised December 22, 1989 – Form 2)

In this part of the experiment I will be asking you to make a number of different facial movements. …The procedure will be for you to rest your face for a while, then I will ask you to make a "standard" set of facial movements. I will tell you to rest, and then ask you to make another set of facial movements. After that I will ask you if you experienced any emotions, memories, or sensations. By emotions, I mean feelings such as fear, anger, disgust, happiness, surprise, sadness…. By memories, I mean any thoughts that came to mind. By sensations, I mean any physical changes you became aware of in any part of your body, such as your heart, your stomach, or your skin.

We will repeat this sequence – first resting your face, then making a "standard" set of movements, then resting your face, followed by a new set of facial movements, a number of times during this part of the experiment.

. . . .

2. Fear

• raise your brows as high as you can and pull them together.

• raise your upper eyelid and tighten your lower eyelid.

• let your mouth drop open and stretch your lips horizontally.

    Now hold that face

. . . .

4. Happiness

• raise your cheeks (try squinting a little)

• part your lips and let your lip corners come up

    Now hold that face

. . . .

Levenson, Ekman, and Friesen (1990).

Appendix F: Video Clip Opening Images and URLs

Unfortunately, the links below to the clipped videos (8-15 seconds) are not always functional. However, the original full-length videos are often available at the link address.

(1) Happiness http://www.tubechop.com/watch/731677

(2) Sadness http://www.tubechop.com/watch/734202

(3) Disgust http://www.tubechop.com/watch/734229

(4) Fear http://www.tubechop.com/watch/731881

(5) Anger http://youtu.be/gn08hgH0QaI

(6) Surprise http://youtu.be/Y5P5vpMOdyI

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