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Somatic underpinnings of perceived empathy: The importance of psychotherapy training

IRENE MESSINA*, ARIANNA PALMIERI, MARCO SAMBIN, JOHANN ROLAND KLEINBUB, ALBERTO VOCI, & VINCENZO CALVO

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Abstract
This study investigated the somatic underpinning of empathy using an interpersonal physiology approach. Thirty-nine dyads were formed by a “pseudo-patient” and a “listener” (a therapist, a psychologist, or a non-therapist). Dyadic physiological concordance in electrodermal responses and listeners’ empathy were evaluated during simulations of clinical sessions. A significant positive correlation between empathy as perceived by pseudo-patients and physiological concordance was found, providing empirical evidence of a somatic underpinning of empathy. Moreover, therapists showed higher levels of physiological concordance and empathy, confirming the importance of psychotherapy training in managing clinical interactions.

Keywords: emotion in therapy; psychotherapist training/supervision/development

Empathy has been described as “the capacity to know emotionally what another is experiencing from within the frame of reference of that other person, the capacity to sample the feelings of another or to put one’s self in another’s shoes” (Berger, 1987). It is considered a multidimensional concept that includes several related components, such as: (1) emotional contagion and mimicry, which refers to automatic reactions in observing others expressing emotions (Hess & Blairy, 2001; Sonnby-Borgström, 2002); (2) emotional empathy as affective recognition, which requires a separation between the observer and the observed (Losoya & Eisenberg, 2001), also known as self-agency (Decety & Sommerville, 2003); (3) cognitive empathy, consisting in the cognitive capacity to understand the other’s perspective and belief (Preston et al., 2007; Frith & Frith, 2005). Empathic reaction may be translated in different observable behavioral responses, such as prosocial behaviors (Eisenberg, 2007; Stocks Lishner, & Decker, 2009) or therapeutic interventions.

A large body of empirical evidence indicates that therapist’s empathy plays a key role in the psychotherapy process and in the outcome of psycho-dynamic psychotherapy (Free, Green, Grace, Chernus, & Whitman, 1983; Truax et al., 1966), of client-centered therapy (Rogers, 1957), and of cognitive behavioral therapy (Burns & Nolen-Hoeksema, 1992). In particular, therapist’s empathy perceived by the patient seems to be a non-specific predictor of a positive psychotherapy outcome (Elliott, Bohart, Watson, & Greenberg, 2011; Williams & Dazzi, 2006). Lack of empathy, likewise, proved to be a predictor of a negative outcome (Mohr, 1995).

Due to the importance of empathy in clinical settings, several instruments have been described in the literature to evaluate therapists’ empathic attitudes (Kurtz & Grummon, 1972; Yu & Kirk, 2009). Self-report questionnaires completed by therapists and/or patients have been administered to evaluate subjective perception of empathy, or “empathic resonation” (Barrett-Lennard, 1986), which involves both cognitive evaluation and “unconscious emotional connections” due to identification (Gladstein, 1983). Scales for the assessment of therapists’ empathic responses by external judges (to video- and audio-recorded sessions) have been employed to obtain a more objective evaluations of therapists’ intervention (Carkhuff, 1969; Truax & Carkhuff, 1967). Such scales take into consideration the “additive empathy” that is described as the therapists’ skill to deeply understand the others’ experience and to translate this understanding in therapeutic interventions; this ability goes beyond the capacity to be...
in-tune with the feeling of the others, called “interchangeable empathy” (Ivey et al., 2010). Finally, physiological measures have been used in order to overcome the biases inherent in self-report questionnaires, producing a more objective, comparative measure of empathic attitude (Levenson & Ruef, 1992), and to take into consideration also the unconscious component of empathy (Marci & Riess, 2005).

Some empirical evidence has indicated that observing others’ emotional responses results in changes in the visceral state which may be mirrored in the observer, in whom a corresponding representation is mirrored (Critchley, 2009). Individual differences in physiological parameters related to empathy have been found by measuring heart rate (Balconi & Bortolotti, 2012), skin temperature (Ebisch et al., 2012), electromyographic response (EMG; Sonnby-Borgström, Jönsson, & Owe, 2003), and electrodermal response (EDA). Even if each autonomic measure may be a marker of a different component of empathy, Oliveira-Silva and Gonçalves (2011) hypothesized that heart rate is a marker of additive empathy, whereas interchangeable empathy may be measured using EDA. The latter is one of the most widely studied response systems in psychophysiological research and one of the most used indices to study emotions (Sequeira, Hot, Silvert, & Delplanque, 2009; Veturgho, Liguori, Cortelli, & Montagna, 2003). The principle of EDA is to record electrical activity in the skin; it depends on sweat secreted by the eccrine sweat glands, which are entirely controlled by the sympathetic system. Thus, it represents a direct measurement of sympathetic nervous activation (Bauer, 1998; Dawson, 1990).

In particular, EDA has been successfully employed in studying empathy. Individuals with higher empathy scores have been shown to have higher EDA responses while they were caring for crying infants (Wiesenfeld, Whitman, & Malatesta, 1984) or witnessing emotional interpersonal scenes (Balconi & Bortolotti, 2012). Clinical interviewers have higher EDA responses when they operate with an empathic attitude compared with a distancing one (Finset, Stensrud, Holt, Verheul, & Bensing, 2011). Some EDA amplitudes seem to reflect altruistic behaviors related to empathy (Hein, Lamm, Brodbeck, & Singer, 2011).

Paralleling the physiological approaches, in the field of neuroscience the discovery of mirror neurons and their investigation through neuroimaging techniques has provided empirical evidence supporting the neural bases of empathic resonance (Gallese, 2007; Iacoboni, 2009; Cattaneo & Rizzolatti, 2009). In accordance with Gallese, Eagle, & Migone (2007), observing another’s emotional expression creates an automatic “embodied simulation” of the other’s emotions in the observer’s brain. In the studies described above, physiological and neuroimaging techniques have generally been used in experimental settings to detect somatic underpinnings of empathy in single individuals.

However, in line with recent systemic models (Beebe & Lachmann, 1994; Tronick et al., 1998), the achievement of therapeutic change is based on the mutual affective regulation between therapist and patient, and the dyadic level, more than the individual level, is the most relevant to understanding psychotherapy processes (Stolorow, 1997). From this standpoint, both components of the dyad (therapist-patient) should be taken into consideration when the empathic effectiveness of therapeutic interactions is evaluated. To overcome the limits of the single-individual studies, an interpersonal physiology approach (Adler, 2007; DiMascio, Boyd, & Geenblatt, 1957), based on measurement of physiological indicators during interpersonal interactions, was adopted in the present study.

The use of interpersonal physiology in studying patient-therapist clinical interactions dates to the mid-1950s, when a series of studies found evidence for a general physiological concordance between therapist and patient during psychotherapy sessions or clinical interviews, quantified by heart rate (DiMascio et al., 1957; Malmo, Boag, & Smith 1957; Stanek, Hahn, & Mayer, 1973) or by combining several indices (heart rate, skin conductance, blood pressure, EMG activity; Busk, Naftulin, Donnelly, & Wolkon, 1976).

Although the results provided by the interpersonal physiology approach may concern a physiological component of empathy, physiological concordance and empathy do not coincide. The physiological response to being exposed to someone who is expressing negative emotions could potentially point in more than one direction: In some it might induce empathy, in others it might lead to avoidance behavior (Batson, Fultz, & Schoenrade, 1987; Decety, 2011).

A study conducted by Marci, Ham, Moran and Orr (2007) has investigated the relationship between EDA concordance, empathy as perceived by the patients and the quality of social-emotional interactions, in patient-therapist dyads during 20 psychotherapy sessions. They found significant correlations between EDA concordance, therapist’s empathy as perceived by the patient, and the presence of more positive interactions during the session. These results provided early empirical evidence of the validity of physiological concordance as a measure of biological aspects of clinical interaction.

The first aim of our study was to further investigate the relationship between empathy and physiological concordance in experimental simulations of
clinical settings, through the evaluation of 39 simulations of clinical interactions between “pseudo-patients” and “listeners” (therapists, psychologists without psychotherapy training, and non-therapists). Extending the methodology adopted by Marci et al. (2007), we used a more complex experimental design, considering the central construct of empathy from various and relevant perspectives: Not only (a) empathy as perceived by the pseudo-patients, but also (b) empathy as evaluated by the listeners themselves, and (c) empathy as evaluated by external judges on video-recorded experimental sessions.

Moreover, we intended to investigate empathy and EDA concordance, comparing individuals with different degrees of professional and relational competencies in clinical settings. This is a topic of central interest in psychotherapy research: Indeed, variations in successful psychotherapy outcomes seem to be related more to therapists’ competencies than to specific factors connected to psychotherapeutic technical approaches (Keijsers, Schaap, & Hoogduin, 2000; Lafferty, Beutler, & Crago, 1989; Luborsky et al., 1986). Due to the importance of therapists’ competencies, in 2010 the Society of Psychotherapy Research organized the International Project on the Effectiveness of Psychotherapy and Psychotherapy Training, which has proposed the inclusion of quantitative measures in psychotherapy training evaluation (Elliott & Zucconi, 2010). Accomplishing this request, the second aim of our study was to investigate the differences between empathy and physiological concordance in therapist-patient dyads compared with generic dyads. Thus, we compared responses in therapists, psychologists without psychotherapy training, and individuals without a theoretical psychological background.

To our knowledge, this is the first attempt to use physiological concordance in order to evaluate specific therapists’ competencies.

In summary, in the present study we investigated the relationship between empathy and physiological concordance in general, and with regard to specific relational competencies in therapists. We predicted a general relationship between EDA concordance and empathy measures, and higher levels of empathy and EDA concordance among therapists compared to individuals without psychotherapy training.

Method

Participants

Participants were 13 volunteers, without history of neurological or psychiatric disorders, who agreed to play the role of patients (“pseudo-patients”) and 39 “listeners,” divided into three groups: 13 therapists, 13 psychologists and 13 non-therapists. The therapists were graduates in psychology or medicine who had completed a 4-year postgraduate course in psychotherapy at a training school recognized by the Italian Ministry of Education, University and Research (MIUR); the psychologists were graduates in psychology without postgraduate psychotherapy training or any kind of professional training; the non-therapists were individuals with a degree in disciplines not linked to psychological or humanistic sciences. Thirty-nine dyads were made up of a pseudo-patient, on the one hand, and a listener, on the other. All of the participants signed informed consent authorization forms, in accordance with the Ethics Committee of the Faculty of Psychology of the University of Padua. A preliminary between-groups analysis of variance (ANOVA) showed that age and educational level did not differ across the three groups of listeners. Participants’ demographic characteristics are outlined in Table I.

Procedure

The members of the dyads agreed to take part in a 20-minute video recorded sessions during which the pseudo-patient would be asked to talk about a personal problem with the listener. Each pseudo-patient took part in three sessions, one for each type of listener, and was instructed by the experimenter in a different way for each of these. In one he/she was instructed to: “Talk about a problematic situation regarding your relationship with one of the members of your family”; in another he/she was instructed to: “Talk about a problematic situation regarding your relationship with one of your friends/colleagues”; and finally he/she was instructed to: “Talk about a problematic situation regarding your relationship with your partner or ex-partner.” The directions, assigned in a pseudo-random way, were diversified to avoid a repetitive, routinely automatic interaction. The listeners, instead, were instructed in the following way: “You will take part in a 20-minute session during which an individual will talk to you about one of his/her problems. Feel free to express yourself in whatever way you wish and you feel is opportune. There will be an audio signal to let you know when the time is up.” All participants followed the

<table>
<thead>
<tr>
<th>Groups</th>
<th>Gender (F)</th>
<th>Age (Yrs)</th>
<th>Educational level (Yrs)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pseudo-patients</td>
<td>13</td>
<td>23.84 ± 3.71</td>
<td>14.92 ± 1.93</td>
</tr>
<tr>
<td>Therapists</td>
<td>13</td>
<td>31.61 ± 2.47</td>
<td>18.84 ± 1.67</td>
</tr>
<tr>
<td>Psychologists</td>
<td>13</td>
<td>25.23 ± 1.42</td>
<td>18.69 ± 1.38</td>
</tr>
<tr>
<td>Non-therapists</td>
<td>13</td>
<td>29.15 ± 3.71</td>
<td>18.61 ± 1.19</td>
</tr>
</tbody>
</table>

Table I. Demographic characteristics of participants
instructions, interacting and communicating with the “listeners” throughout the entire session. After half an hour, both members of the dyad were asked to fill out a self-report concerning the empathy that was perceived/conveyed during the session. The video-recorded sessions were also assessed by external judges.

**Measures**

**Electrodermal activity measurements (EDA) and concordance estimation.** EDA activity was measured simultaneously in both components of the dyad during their interaction using the Visual Energy Tester (Copyright Elemaya, 1995–2010). Two electrodes were located on the second and fourth digits of the participants’ non-dominant hand, following the standard recommendations for EDA response acquisition (Fowles et al., 1981). EDA activity was acquired for 18 minutes, beginning 2 minutes after the session began and lasting until the audio signal was sounded.

In accordance with a procedure validated by Marci and colleagues (Marci & Orr, 2006; Marci et al., 2007), physiological concordance was estimated using the average slope of the EDA levels within 5-second mobile windows with 1-second increments: The average slope for the first 5 seconds was determined, and then the window was moved forward 1 second and the average slope for the subsequent 5 seconds was calculated. To measure the concordance, Pearson’s correlations of the average slopes of the two components of each dyad were performed using 15-second windows. A total score of the entire session was obtained through the calculation of the ratio between the sum of the positive correlations across the session and the sum of the absolute value of negative correlations across the session. Due to the skewness of the ratios, a natural logarithmic transformation was applied to the result, obtaining a whole session index ranging from −1 to +1. An index value of zero corresponded to an equal weight of positive and negative correlations in the session, a value greater than zero reflected the predominance of positive correlations, and thus the presence of a physiological concordance, and a value lower than zero corresponded to the predominance of negative correlations. This procedure was repeated for several temporal lag values, ranging from 0 to 4 seconds.

**Perceived empathy.** The Italian version of the Empathic Understanding (EUS) subscale of the Barrett-Lennard Relationship Inventory (Barrett-Lennard, 1986; Messina, Sambin, & Palmieri, in press) was used to evaluate the listener’s empathy from their own perspective and from that of the pseudo-patients. The EUS is made up of two parts: (1) the “Myself-toward-the-Other” (EUS-MO) part, aiming to evaluate the empathy that the listener (therapist, psychologist, non-therapist) thinks he/she has conveyed to the other member of the dyad (e.g., “I want to understand how He/She sees things”); (2) the “Other-toward-Self” (EUS-OS) part, aiming to evaluate the empathy perceived by the pseudo-patient (e.g., “He/She wants to understand how I see things”). Each part of the EUS is composed of 16 items with possible scores ranging from −3 (“strongly agree”) to +3 (“strongly disagree”), with no zero option. The total score can range between −48 and +48, with higher score indicating higher perceived empathic understanding.

**Observed empathy.** The video-recorded interactions were evaluated by two independent judges using the Empathic Understanding in Interpersonal Processes Scale (EUIP; Carkhuff, 1969), a five-level system for measuring understanding in interpersonal processes, with higher scoring indicating higher empathy. Both judges were psychologists who attended a theoretical training course focusing on the EUIP qualitative grid and were blind to the listeners’ profession/education. The evaluation was made on the basis of three 1-minute fragments, randomly extracted from each conversation and taken, respectively, from its beginning, middle section, and conclusion. A total score was obtained by calculating the average score of the three fragments by each judge and averaging that value. The ratings of the two judges across the 39 dyads were highly correlated \( r = .81; p < .001 \).

**Statistical Analysis**

In order to evaluate the correlation between physiological concordance and empathy, Pearson’s correlations were estimated between EDA concordance scores and EUS-OS, EUS-MO and EUIP scores. Additional Pearson’s correlations were performed to investigate the statistical relationships between the empathy measures included in the study.

Differences in EDA concordance between the three groups (therapists, psychologists and non-therapists) were calculated using between-groups analysis of variance (ANOVA), using lags from 0 to 4 seconds as the temporal gap between pseudo-patients and listeners’ responses. Bonferroni’s multiple-comparisons post hoc analyses were carried out to detect differences between the means relative to the three target groups. In addition, multilevel models for repeated measures were performed for an exploratory analysis to evaluate the changes in
physiological concordance from lag 0 to lag 4 in each group. Finally, between-groups analysis of variance (ANOVA) and Bonferroni’s multiple comparisons were performed to detect group differences in the EUS-OS, EUS-MO and EUIP scores.

**Results**

**Empathy and EDA concordance**

Positive Pearson’s correlations were found between EUS-OS scores and EDA concordance with regard to the 3-second \( r = .32; p = .048 \) and the 4-second lags \( r = .37; p = .022 \), confirming an association between physiological concordance and empathy as perceived by the pseudo-patients. No significant differences were found considering the other lags between listener and pseudo-patients’ responses, nor were significant correlations found between EDA concordance and EUS-MO scores. Thus, empathy as perceived by the listeners did not correlate with physiological concordance. Finally, no significant correlations were found between EDA concordance and the EUIP scores.

There were no significant correlations between EUS-OS and the other empathy scores based on the EUS-MO and EUIP. The correlation between the EUS-MO and EUIP scores \( r = 0.29; p = .06 \) was only marginally significant.

**Differences between therapists, psychologists and non-therapists**

Between-groups ANOVA showed significant differences at lag-0, \( F(2, 36) = 3.39, p < .033 \), and lag 3 times, \( F(2, 36) = 3.35, p < .056 \), while no significant differences were found with regard to other lags (see Table II). Post-hoc analysis showed that the main effect at lag 0 was due to a higher concordance in the psychologists compared to therapists. At lag 3, instead, psychologists showed a lower concordance compared to the therapists.

The exploratory analysis of the relationship between the lag variation from lag 0 to lag 4 and physiological concordance showed a statistically significant decrease in physiological concordance in the psychologists, \( t(12) = -4.64, p < .001 \). Therapists, instead, marginally increased their physiological concordance, \( t(12) = 1.88, p = .065 \).

With regard to empathy measures, the ANOVA showed that the EUS-OS scores were not different across groups, whereas for the EUS-MO the main effect was marginally significant, \( F(2, 36) = 2.98, p < .07 \). Post hoc analyses showed that therapists perceived themselves as more empathic than non-therapists (see Table III). Concerning EUIP, the main effect was significant, \( F(2, 36) = 61.78, p < .001 \): External judges assigned higher scores to the therapists than to psychologists and non-therapists.

**Discussion**

In the present study, the relationship between physiological concordance and empathic attitudes in clinical settings were investigated using the interpersonal physiology approach (Adler, 2002; DiMascio et al., 1957), which is based on the simultaneous measurement of physiological activity variations in interacting individuals. Thirty-nine dyads composed of a volunteer student (“pseudo-patient”), playing the role of a patient, and of a “listener” (a therapist, a psychologist without specific professional training, and a “non-therapist”, that is an individual without any kind of psychological education) were engaged in simulation of clinical interactions during which the pseudo-patient told the listener about a personal problem. Our aims were to investigate the relationship between physiological concordance and listeners’ empathy in general and with regard to specific relational competencies in listeners, by evaluating differences in empathic attitudes between therapists, psychologists, and non-therapists.

As a whole, a clear relationship emerged between electrodermal activity (EDA) concordance in the dyad and listener’s empathy, based on scores on self-report questionnaires completed by pseudo-patients. This result confirms that the physiological concordance could reflect listener’s empathic attitudes,

Table II. Between-groups ANOVA in physiological concordance

<table>
<thead>
<tr>
<th>EDA</th>
<th>Therapists</th>
<th>Psychologists</th>
<th>Non-therapists</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>M</td>
<td>SD</td>
<td>M</td>
</tr>
<tr>
<td>0</td>
<td>-0.02a</td>
<td>0.33</td>
<td>0.27b</td>
</tr>
<tr>
<td>1</td>
<td>-0.04a</td>
<td>0.34</td>
<td>0.19a</td>
</tr>
<tr>
<td>2</td>
<td>-0.05a</td>
<td>0.29</td>
<td>-0.02a</td>
</tr>
<tr>
<td>3</td>
<td>0.12a</td>
<td>0.29</td>
<td>-0.19b</td>
</tr>
<tr>
<td>4</td>
<td>0.11a</td>
<td>0.24</td>
<td>-0.11b</td>
</tr>
</tbody>
</table>

*Note. In the same line, means with different superscripts are different at *p* < .04; if superscripts are in parentheses at *p* < .06. Bonferroni correction was applied to all post-hoc comparisons.*
consistently with the findings by Marci et al. (2007) regarding perceived empathy and physiological concordance in patient-therapist dyads during psychotherapy sessions. Moreover our results are consistent with the neuroscientific findings on the biological basis of empathy, such as the recent discovery of the mirror neuron system, which some authors considered the neural foundation of empathy (Gallese, 2007; Schulte-Ruther, Markowitsch, Fink, & Piefke, 2007). The observation of mirroring activation in the autonomic system seems to widen the concept of brain mirroring to the whole body’s tendency to mirror others’ states as the basis of empathic understanding. The interpersonal physiology approach could then be useful in investigating in vivo human interactions, offering a broad framework for the mirroring phenomenon and the empathic attitude in a more ecological experimental setting.

With regard to the perception of listeners’ empathy, some heterogeneity emerged. A correlation was found between empathy as perceived by the listeners and the assessments of external judges, but no correlation were found between these scores and electrodermal activity concordance or empathy as perceived by the pseudo-patients. In the literature, low correlations between different measures of empathy have been reported by some authors, and this result has been explained by the multidimensionality of the construct (Kurtz & Grummon, 1972; Yu & Kirk, 2009). Indeed, an explicative hypothesis of our findings could be that physiological concordance involves different forms of empathy. In the literature, at least two forms of empathy have been described: A sensory one, based on somatic resonance, and a more complex, affective one connected to emotional sharing and social relationship (Lamm, Nusbaum, Meltzoff, & Decety, 2007). It could be that empathy as perceived by listeners or as evaluated by external judges may be the result of a common theoretical framework based on the theory that “what therapists have to do is to be empathic,” which is something entirely different from the emotional, experiential perception of empathy (Mahrer, Boulet, & Fairweather, 1994). Instead, physiological concordance and pseudo-patient evaluation may involve more unconscious, non-verbal, aspects of empathy (Sonnby-Borgstrom et al., 2003).

Regarding comparison between measures, the similarity between empathy as perceived by pseudo-patients and physiological concordance is an intriguing result because the first is considered to be the best predictor of a successful psychotherapeutic outcome (Kurtz & Grummon, 1972; Orlinsky & Russell, 1994). Aiming at a reliable assessment of empathy, additionally to self-report questionnaires, EDA concordance could overcome some limits found in clinical settings, such as wanting to gratify or to please one’s own therapist (Huang, Liao, & Chang, 1998). Therefore it could be a useful instrument to predict psychotherapy outcome and to evaluate therapists’ effectiveness.

With respect to the second aim of the present study, the investigation of EDA concordance related to specific therapists’ competencies, we found differences between therapists, psychologists and non-therapists in both physiological concordance and empathy measures.

Therapists obtained higher scores in all empathy-related measures, with significantly higher results in empathy as perceived by themselves in comparison with non-therapists and higher results in empathy as evaluated by external judges in comparison with psychologists and non-therapists. These results seem to confirm our hypothesis on the existence of professional and relational competencies in therapists due to psychotherapy training. The results in empathy measures were confirmed also by the presence of higher levels of EDA concordance using a 3-second lag, which was related to empathy perception in pseudo-patients.

Psychologists obtained scores similar to non-therapists in empathy measures, confirming once again the importance of psychotherapy training in order to develop relational competencies. However, they had the lowest score in physiological concordance at the 3-second lag, whereas they were more concordant than the other groups with a perfect synchrony between pseudo-patient and listener’

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**Table III.** Between-groups ANOVA in measures of empathy

<table>
<thead>
<tr>
<th></th>
<th>Therapists</th>
<th></th>
<th>Psychologists</th>
<th></th>
<th>Non-therapists</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>M</td>
<td>SD</td>
<td>M</td>
<td>SD</td>
<td>M</td>
<td>SD</td>
</tr>
<tr>
<td>EUS-OS</td>
<td>21.92⁶</td>
<td>16.14</td>
<td>17.23⁶</td>
<td>15.80</td>
<td>20.2⁶</td>
<td>16.07</td>
</tr>
<tr>
<td>EUS-MO</td>
<td>16.00⁶</td>
<td>12.32</td>
<td>8.08ab</td>
<td>14.69</td>
<td>2.23(b)</td>
<td>16.05</td>
</tr>
<tr>
<td>EUIP</td>
<td>3.51⁶</td>
<td>0.71</td>
<td>1.65⁶</td>
<td>0.41</td>
<td>1.44⁶</td>
<td>0.38</td>
</tr>
</tbody>
</table>

*Note. In the same line, means with different superscripts are different at p < .001; if superscripts are in parentheses at p < .06. Bonferroni correction was applied to all post-hoc comparisons. EU-OS = Empathic Understanding version “Other-toward-Self”; EU-MO = Empathic Understanding version “Myself-toward-the-Other”; EUIP = Empathic Understanding in Interpersonal Processes Scale.*
physiological responses (0-second lag). In order to better understand the meaning of these differences, changes in temporal variations of listeners’ responses were explored, considering the variation in the dyads’ concordance from 0-second to 3-second lags. In this analysis, psychologists’ concordance, which was higher than for the other groups with a 0-second lag, showed a rapid, significant decrease within a few seconds. After a 3-second delay, the psychologists showed a significantly lower concordance with respect to both the therapist group and, contrary to what could be expected, to the non-therapists. The impression is that the psychologist group rapidly “lost” the immediate empathic intimacy established with the patient. The temporal fall in the psychologists’ concordance in EDA could tentatively be interpreted as being connected with avoidance and related distress in the face of the pseudo-patient’s emotional negative expression.

Psychologists may be motivated by the desire to help and seem to be capable of detecting relevant topics in the pseudo-patients’ verbal expression (as opposed to non-therapists), but also seem to be blocked by their lack of professional experience and of the clinical instruments to cope with pseudo-patients’ negative feelings. In accordance with this hypothesis, Hassmenstad, Dziobek, Rogers, Wolf and Convit (2007) found that individuals without any clinical training experience more anxiety and distress than therapists in the face of others’ negative emotions. It would seem logical that less anxious therapists can better manage their negative feelings towards patients’ negative emotional expression with respect to more anxious ones, as their training helps them to understand and manage their countertransferring responses to their patients’ behaviors, which may include anger, hostility or antagonism (Yulis & Kiesler, 1968; Hayes & Gelso 1991). Professional training also seems to help improve therapists’ self-efficacy and to relieve their anxiety (Al-Darmaki, 2004).

When a temporal analysis is done, therapists, who appeared as more empathic, were shown to increase their physiological concordance from the 0-second to 3-second lags. They seem, then, to have a slower, more effective response compared with other listener groups. These results suggest that a truly empathic approach may require the use of more effortful processes reflecting an attentive, controlled component (Barrett, Tugade, & Engle, 2004). In accordance with this hypothesis, some empirical evidence exists that there is a faster, more automatic component in processing others’ negative expressions signalling a potential threat and resulting in avoidance behaviors, and a more controlled component, which emerges later and results in empathic responses (Fan & Han, 2008; Yamada & Decety, 2009). In this perspective, a putative mechanism underpinning therapists’ relational competencies is probably linked to their capacity to stay with the patient in his/her painful feelings.

In spite of its original findings, this study does present some limits: First of all the gap existing between the studies’ methodology in a laboratory setting and the complexity of real clinical settings shall be considered. Further studies are warranted to investigate the relationship between empathy and physiological concordance in real psychotherapy sessions. Secondly, the EDA measurement is a limited instrument because it offers only information related to the sympathetic nervous system activation. It would be interesting to find correspondence between our results and findings provided by more complex instruments such as neuroimaging techniques, or other physiological measures such as heart/ breathing rates or EMG biofeedback. For example, it has been found that the cognitive additive level of empathy is related to cardiac activity, but not to electrodermal activity (Oliveira-Silva & Gonçalves, 2011). Moreover, since the majority of the listeners involved in this study were females, and in view of gender differences in empathy, which is found to be higher in females (Schulte-Rüther et al., 2007), it would be interesting to evaluate the relationship between physiological concordance and empathy in a wider, more heterogeneous sample.

In conclusion, the present study provides empirical evidence concerning the relationship between empathy and physiological concordance during in vivo interactions. Our results support the hypothesis that interpersonal physiology could be a good approach to study the biological basis of interpersonal interactions in clinical settings from a variety of perspectives. The differences, particularly with regard to EDA concordance, found between therapists at the end of their psychotherapy training period, psychologists without training, and individuals without a psychological background offer intriguing clues about the nature of therapists’ relational competencies. Future studies should use a longitudinal experimental design with the aim of investigating the development of empathic attitudes during psychotherapy training and to clarifying other possible meanings of physiological concordance in clinical interaction and its influence on psychotherapy outcome.

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References


