

Interpersonal emotion regulation questionnaire: psychometric properties of the Italian version and associations with psychopathology

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ABSTRACT

The emerging field of interpersonal emotion regulation (IER) is drawing attention to forms of emotion regulation which involve communication and social interaction as part of the regulation process. The availability of instruments to measure IER in different languages represents significant promise for future work in this field. The goal of the present study was to validate an Italian adaptation of a self-report instrument for the assessment of IER, the *Interpersonal Emotion Regulation Questionnaire* (IERQ; Hofmann *et al.*, 2016). In an Italian sample (N=448), exploratory and confirmatory factor analyses confirmed the original structure comprising four factors (*Enhancing Positive Affect, Perspective Taking, Soothing* and *Social Modelling*). Correlations with other measures of emotion regulation showed good convergent validity of the questionnaire.

Key words: Interpersonal emotion regulation; IERQ; confirmatory factor analysis; correlational analysis; psychopathology.

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See online Appendix for the Italian adaptation of the IERQ questionnaire

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Introduction

In everyday life, we regulate emotions by trying to influence which emotions we have, when we have them, and how we experience and express these emotions (Gross, 1998). For example, when experiencing distress, we may attempt to decrease our negative emotional reactions by positively reappraising the stressful event or suppressing the expression of our emotional reactions. In many other cases, we may pursue emotion regulation goals through social interactions. For example, we may attempt to decrease our negative emotional reactions by seeking reassurance from others or sharing negative emotions about a stressful event. Also in the context of psychotherapy, patients' overreliance or underuse of the therapist to regulate emotions is clinically relevant information (Messina et al., 2021; Talia et al., 2019). Prevailing emotion regulation models recognize the importance of interpersonal processes in regulating emotions (Campos et al., 2011; Grecucci et al., 2021; Gross et al., 2006) and psychological treatments often incorporate interpersonal features of regulation (Dadomo et al., 2016; Frederickson et al., 2018; Grecucci et al., 2020a; Grecucci et al., 2020b; Messina et al., 2021). However, since the 1990s, the majority of research in this field has focused on intra-personal forms of emotion regulation, less so on interpersonal emotion regulation (IER; Grecucci et al., 2013a; Grecucci et al., 2015).

More recently, IER has received increased attention, with the development of clearer frameworks to conceptualize this phenomenon (Dixon-Gordon *et al.*, 2015; Grecucci *et al.*, 2020; Niven *et al.*, 2009; Williams *et al.*, 2018;





Zaki & Williams, 2013;). In these frameworks, IER is defined as a set of regulatory processes that are located in the interpersonal extremity of the intra-personal versus interpersonal continuum of emotion regulation (Campo et al., 2017), and occur during live social interactions (Niven et al., 2009; Zaki & Williams, 2013). Starting from this general definition, Zaki and Williams (2013) distinguished intrinsic IER - which refers to the process of regulating one's own emotions through interpersonal interactions (for example, seeking reassurance when distressed) - from extrinsic IER, which refers to regulating another's emotions through interpersonal interactions (for example, providing reassurance to a person who is distressed). The same authors also drew a distinction between response-dependent IER, which requires particular qualities of another person's response (for example, a person may feel better if he/she seeks support and the other person provides support), and response-independent IER, which does not require a particular response from the other person (for example, labelling emotions may be effective regardless of others' responses). Regarding IER strategies, Niven and colleagues (2009) differentiated cognitive from behavioural strategies of IER, on the basis of the involvement of thoughts (for example, to show a different perspective) versus concrete behaviours (for example, physical contact). Finally, other authors have identified several interpersonal influences that may occur during the emotion regulation process, which are described in Gross's process model (Christensen & Haynos, 2020; Marroquín, 2011). In line with this model, a person may refer to others or help others when selecting potentially distressing situations, modifying distressing situations, moving attentional deployment toward less distressing stimuli, reappraising the meaning of the situation to decrease the perception of the distress, or be helped in modulating the emotional expression.

These early theoretical contributions set the stage for the development of self-report measures of intrinsic IER. Among existing theory-based instruments, the Interpersonal Regulation Questionnaire (IRQ; Williams et al., 2018) is focused on individuals' tendencies to engage in specific IER strategies and in their perceptions of the efficacy of such strategies to decrease negative and increase positive emotions. The IRQ is based on four factors: Negative-Tendency (the tendency to use IER in response to negative emotions), Negative-Efficacy (the efficacy of IER in regulating negative emotions), Positive-Tendency (the tendency to use IER in response to positive emotions) and Positive-Efficacy (the efficacy of IER in regulating positive emotions). Another questionnaire, the Difficulties in Interpersonal Emotion Regulation (DIRE; Dixon-Gordon et al., 2018), has been developed to evaluate difficulties in IER that may be relevant for psychopathology. Based on previous theories and research, the authors identified two factors of IER: Reassurance-Seek (item example: 'keep asking for reassurance') and Vent (item example: 'raising voice or complaining'), which are both negatively associated with mental health (Messina *et al.*, 2022, in press). When attempting to elucidate the nature of IER, however, the theory-based nature of such instruments may represent a limitation because available theoretical contributions are based more on hypotheses than on empirical evidence.

This limitation is overcome by the Interpersonal Emotion Regulation Questionnaire (IERQ; Hofmann et al., 2016), a data-driven measure suitable for the assessment of intrinsic IER. The items composed in the IERQ have been selected from an empirically derived item pool obtained from participants' responses to openended questions investigating the way they use others to regulate emotions. Four factors of IER emerged from the data-driven procedure: Enhancing Positive Affect, which describes a tendency to seek out others to increase feelings of happiness and joy; Perspective Taking, which involves the use of others to be reminded not to worry and that others might have worse situations; Soothing, which consists of seeking out others for comfort and sympathy; and Social Modelling, which concerns looking to others to see how they might cope with a given situation. In the original validation study (Hofmann et al., 2016), the factors of the IERQ appeared to be only mildly correlated with traditional intra-personal emotion regulation and potentially related to mental wellbeing. In the present study, we provided an Italian adaptation of the IERQ and began to evaluate its psychometric features. Specifically, we aimed: i) at investigating whether the factorial structure of the Italian adaptation replicates the original version; and ii) at assessing the correlations between the IERQ and other measures of emotion regulation and psychopathology.

Materials and methods

Participants and data collection

Volunteer participants were recruited online using social networks. Inclusion criteria included: i) ages 18 and older; ii) Italian speaker; and iii) valid responses (no missing data in the questionnaires). The questionnaires were prepared using Google Forms and disseminated through different social media (including Facebook, Instagram, Twitter, LinkedIn, Telegram and WhatsApp). We used a snowball sampling strategy, where the links were initially shared on the social media and participants were encouraged to share them with others, with a focus on recruiting from the general public. The study received approval from the Ethical Committee for Psychological Research at the University of Padua. Informed consent was obtained from all participants included in the study. The final sample consisted of 448 adults (310 females) with ages ranging from 18 to 67 (M=39.83, SD=13.27). Demographic features of the sample are described in Table 1.





Instruments

Interpersonal Emotion Regulation Questionnaire (IERQ). An Italian adaptation of the IERQ questionnaire was created in the present study (see the Appendix). First, the items were translated by two translators under the supervision of a clinical psychologist. Subsequently, the translated version was tested on a small group of Italian-speaking adults for clarity and equivalence.

In the original version, exploratory and confirmatory factorial analyses supported the following 4-factor solution (with 5 items for each factor, yielding a total of 20 items): i) Enhancing Positive Affect (item example: 'Because happiness is contagious, I seek out other people when I'm happy'); ii) Perspective Taking (item example: 'Having people remind me that others are worse off helps me when I'm upset'); iii) Soothing (item example: 'I look to others for comfort when I feel upset'; and iv) Social Modelling (item example: 'If I'm upset, I like knowing what other people would do if they were in my situation'). For each item, participants are asked to rate how much the item is true for them on a Likert scale ranging from 1 ('not true for me at all') to 5 ('extremely true for me'). All four factors demonstrated good internal consistency with Cronbach alpha coefficients ranging between 0.89 and 0.94.

Difficulties in Interpersonal Emotion Regulation (DIRE). The DIRE (Dixon-Gordon et al., 2018; Italian version: Messina et al., 2022, in press) is a scenario-based questionnaire composed of 21 items (7 items for each of 3 scenarios). After the description of each scenario (feeling upset about a time sensitive project that needs to be completed for school or work; fighting with a significant other; and thinking that friends have been avoiding you) individuals are asked to rate how distressed they would feel in that scenario on a Likert scale (ranging from 0='not at all distressed' to 100='extremely distressed'). Then, individuals are asked to indicate on another Likert scale the likelihood that they would respond in each of the ways

Table 1. Demographic characteristics of the participants (N=448).

Variable	Frequency	Percentage	
Gender			
Female	310	69.19%	
Male	138	30.80%	
Age			
<20	16	3.57%	
>20 <30	101	22.54%	
>30 <40	116	25.89%	
>40 <50	95	21.21%	
>50 <60	80	17.86%	
>60 < 70	40	8.93%	
Education			
Post-Lauream degree	64	14.29%	
University Graduate	148	33.04%	
High School Graduate	209	46.65%	
Secondary School Graduate	27	6.03%	

described in the items (from 1='very unlikely' to 5='very likely'). The DIRE evaluates two interpersonal strategies, referred to as 'Vent' (2 items: 'Raise your voice or criticize your friends to express how you feel' and 'Complain to mutual acquaintances about your friends') and 'Reassurance-Seeking' (2 items: 'Keep contacting friends and loved ones' and 'Keep asking for reassurance'). It also examines two intra-personal strategies, which are 'Avoidance' (2 items: 'Distract yourself from how you are feeling' and 'Avoid feeling or showing your distress') and 'Acceptance' (1 item: 'Simply notice your feelings'). In the Italian version, all scales had adequate internal consistency (Distress: α =0.63, Avoidance: α =0.65, Accept: α =0.75, Venting: α =0.78, Reassurance-Seeking: α =0.82).

Emotion Regulation Questionnaire (ERQ). The ERQ (Gross & John, 2003; Italian version: Balzarotti *et al.*, 2010) consists of 10 items describing strategies to regulate emotions. Participants are instructed to rate their agreement with the use of such strategies (ranging from 1='Strongly disagree' to 7='Strongly agree'). The ERQ allows the evaluation of two factors: 'Reappraisal' (*e.g.* 'I control my emotions by changing the way I think about the situation I am in') and 'Suppression' (*e.g.* 'I control my emotions by not expressing them'). The Italian ERQ has been shown to have high internal consistency for both the 'Reappraisal' (α =0.84 reappraisal) and 'Suppression' (α =0.72) subscales (Balzarotti *et al.*, 2010).

Difficulties in Emotion Regulation Questionnaire (DERS). The DERS (Gratz & Roemer 2004; Italian version: Giromini et al., 2012) is a 36-item self-report measure that assesses the following dimensions of emotion regulation difficulties: lack of emotional awareness (Awareness), lack of emotional clarity (Clarity), difficulty controlling impulsive behaviours when distressed (Impulsivity), difficulty engaging in goal directed behaviours when distressed (Goals), non-acceptance of negative emotional responses (Non-acceptance), and limited access to effective emotion regulation strategies (Strategies). Many of the items begin with the phrase 'When I'm upset...' followed by descriptions of emotion regulation behaviours. For each item, participants are instructed to rate the frequency of the described item on a five-point Likert scale (from 1='almost never' to 5='almost always'), with higher scores representing increased difficulty with emotion regulation. The DERS demonstrates high internal consistency for all subscales (\alpha ranging from 0.76 to 0.94) (Giromini *et al.*, 2012).

Symptom Checklist 90 (SCL-90). The SCL-90 (Derogatis, 1977; Italian adaptation: Prunas et al., 2012) is a 90-item self-report inventory widely used to assess psychological distress and symptoms of psychopathology in routinely clinical evaluations. The SCL-90 assesses several psychological symptoms including somatization, obsessive-compulsive symptoms, interpersonal sensitivity, depression, anxiety, hostility, phobic anxiety, paranoid ideation, and psychoticism. Participants are asked to in-





dicate the extent to which each symptom bothered them in the last week on a Likert scale ranging from 0 ('not at all') to 4 ('extremely'). We used the SCL-90 to assess two global indices of psychopathology: i) the Global Severity Index (GSI) is an overall index of symptom severity and is the mean of all 90 items; and ii) the Positive Symptom Total (PST) is a count of all the items with non-zero responses and reveals the number of symptoms the respondent reports experiencing.

Results

Factorial structure of the Italian version

Given the relatively limited sample size and the availability of a clear four-factor model (Hofmann *et al.*, 2016), we decided to perform a confirmatory factor analysis (CFA) using the Maximum Likelihood (ML) estimator method. We relied on the same set of goodness-of-fit indices used by Hofmann and colleagues (2016). In addition to the typical chi-square statistic (χ^2 ; Bollen, 1989), we computed the root mean square error of approximation (RMSEA; values below 0.10 indicate adequate fit, while values below 0.06 indicate good or excellent fit: Browne

& Cudeck, 1993), the comparative fit index (CFI) and the non-normed fit Index (NNFI; for both of these indices, values greater than 0.90 indicate acceptable fit, while values greater than 0.95 indicate good or excellent fit: Bentler, 1990; Bentler & Bonett, 1980). The initial model, equal to that illustrated by Hofmann *et al.* (2016), showed an acceptable fit (χ^2 =437.79, P<0.001; RMSEA=0.061; CFI=0.93; NNFI=0.91). All standardized factor loadings were significant, ranging from 0.41 to 1.00 (all P<0.001; see Table 2).

Zero-order correlations. We examined the zero-order associations between the IERQ subscales and demographic characteristics, intra-personal and interpersonal emotion regulation measures and self-reported symptoms of psychopathology (see Table 3). For each set of correlations, the Bonferroni correction for multiple comparisons was applied, by dividing the nominal alpha level (0.05) by the number of correlations computed. Only the correlations that survived the correction are reported and discussed below.

Correlations with demographic variables. In terms of demographic features, being female was associated with higher scores in the Enhancing Positive Affect subscale (P=0.002), and education was positively correlated with

Table 2. Factor loadings resulting from the confirmatory factor analysis (N=448).

Items	Factors			
<u> </u>	SM	so	EPA	PT
If I'm upset, I like knowing what other people would do if they were in my situation.	1.00	_	_	_
When I'm sad, it helps me to hear how others have dealt with similar feelings.	0.91	_	_	_
Seeing how others would handle the same situation helps me when I am frustrated.	0.76	_	_	_
Hearing another person's thoughts on how to handle things helps me when I am worried.	0.66	_	_	_
It makes me feel better to learn how others dealt with their emotions.			_	_
When I feel sad, I seek out others for consolation.	_	0.95	_	_
I look to others for comfort when I feel upset.	_	0.96	_	_
I look to other people when I feel depressed just to know that I am loved.	_	0.91	_	_
I look for other people to offer me compassion when I'm upset.	_	0.93	_	_
Feeling upset often causes me to seek out others who will express sympathy.	_	0.76	_	_
When I feel elated, I seek out other people to make them happy.	_	_	0.88	_
Because happiness is contagious, I seek out other people when I'm happy.	_	_	0.88	_
I like being in the presence of others when I feel positive because it magnifies the good feeling.	_	_	0.63	_
Being in the presence of certain other people feels good when I'm elated.	_	_	0.56	_
I like being around others when I'm excited to share my joy.	_	_	0.41	_
Having people telling me not to worry can calm me down when I am anxious.	_	_	_	0.90
When I am annoyed, others can soothe me by telling me not to worry.	_		_	0.83
It helps me deal with my depressed mood when others point out that things aren't as bad as they seem.		_	_	0.68
Having people remind me that others are worse off helps me when I'm upset.	_	_	_	0.66
When I am upset, others make me feel better by making me realize that things could be a lot worse.	_	_	_	0.66

SM, Social Modelling; SO, Soothing; EPA, Enhancing Positive Affect; PT, Perspective Taking.





the Soothing subscale, with higher scores in more educated participants (P=0.002).

Correlations with other interpersonal emotion regulation measures. Demonstrating good convergent validity, all IERQ subscales were strongly and positively correlated with the subscales of the DIRE questionnaire which assessed interpersonal components of emotion regulation: namely, the Reassurance-Seek and Vent subscales (all P<0.001). For intra-personal regulation, the Accept subscale was positively correlated with Perspective Taking (P=0.001), whereas the Avoid subscale was positively associated with all IERQ subscales (all P<0.001), with the exception of Soothing.

Correlations with intra-personal emotion regulation. Few correlations were found between the IERQ subscales and intra-personal emotion regulation strategies, suggesting that intra-personal and interpersonal components of emotion regulation did not overlap. With respect to the ERQ, Reappraisal was positively and significantly correlated with the Perspective Taking (P<0.001) and Enhanc-

ing Positive Affect (P=0.002). Instead, Suppression was not associated with any IERQ subscale.

Correlations with difficulties in emotion regulation. Several interesting correlations between the DERS and IERO subscales were observed. First, the total DERS score and most of its subscales were significantly correlated with the IERQ subscales measuring Enhancing Positive Affect, Soothing and Social Modelling (see Table 3; all P<0.001). In almost all cases, the correlations were positive, indicating that participants having higher scores on the IERQ subscales experienced more difficulty regulating emotions. In the case of Awareness, however, the correlations were negative, suggesting that participants having higher scores in the IERO subscales had significantly less difficulties in being aware of their emotions. Concerning the other IERQ subscales, Perspective taking showed a slightly different pattern of results, with only a positive association with the Non-Acceptance subscale.

Correlations with symptoms severity and level of psychopathology. To investigate the relationship between the

Table 3. Zero-order correlations. The asterisks indicate the correlations that survived the Bonferroni correction.

	IERQ Enhancing Positive Affect (EPA)	IERQ Perspective Taking (PT)	IERQ Soothing (S)	IERQ Social Modelling (SM)	
A M (SD)	(α=0.81)	$(\alpha=0.78)$ $(\alpha=0.85)$		(a=0.82)	
Age	0.03	0.08	-0.07	-0.08	
Gender (1=female)	0.14**	-0.07	-0.01	-0.01	
Education	-0.02	0.06	0.15**	0.05	
IERQ EPA	-	0.29**	0.35**	0.30**	
IERQ PT	0.29**	-	0.52**	0.60**	
IERQ S	0.35**	0.52**	-	0.64**	
IERQ SM	0.30**	0.60**	0.64**	-	
ERQ Reappraisal	0.14**	0.21**	-0.01	0.12	
ERQ Suppression	-0.05	0.08	-0.09	-0.06	
DERS Total	0.12	0.07	0.29**	0.19**	
DERS Non-acceptance	0.18**	0.15**	0.25**	0.22**	
DERS Goals	0.15**	0.07	0.27**	0.22**	
DERS Impulse	0.17**	0.12	0.29**	0.20**	
DERS Awareness	-0.20**	-0.11	-0.16**	-0.20**	
DERS Strategies	0.11	0.01	0.33**	0.19**	
DERS Clarity	0.02	0.02	0.11	0.09	
DIRE Reassurance-Seek	0.27**	0.25**	0.61**	0.48**	
DIRE Vent	0.17**	0.22**	0.40**	0.30**	
DIRE Accept	0.06	0.16**	0.02	0.07	
DIRE Avoid	0.22**	0.22**	0.08	0.17**	
SCL-90 GSI	0.10	0.02	0.17**	0.15**	
SCL-90 PST	0.08	0.06	0.16**	0.13*	

 $SM, Social \ Modelling; S, Soothing; EPA, Enhancing \ Positive \ Affect; PT, Perspective \ Taking. \ **P < 0.001.$





IERQ and psychopathology, we tested the correlation between the Global Severity Index (GSI) and the Positive Symptom Total (PST) of the Symptom Checklist-90-Revised (Derogatis *et al.*, 1977) with the IERQ subscales Enhancing Positive Affect, Soothing and Social Modelling. The Soothing and Social Modelling factors resulted positively associated with both the SCL-90-GSI and SCL-90-PST (all P<0.006). No significant correlations were found for the Perspective Taking and Enhancing Positive Affect factors.

Discussion and conclusions

In the present study, we developed an Italian version of the IERQ (Hofmann et al., 2016) and investigated its psychometric properties and association with psychopathology. Results provided a first confirmation of the fact that the Italian IERQ is a reliable and valid self-report measure suitable for the assessment of IER. The confirmatory factor analysis of the Italian version produced a satisfactory replication of the four factor structure illustrated by Hofmann et al. (2016), including: Enhancing Positive Affect (i.e. inclination to look to others to enhance feelings of happiness and joy), Perspective Taking (i.e. using others to be reminded not to worry and that there are people who are in a worse condition), Soothing (i.e. looking to others for feelings of comfort and sympathy) and Social Modelling (i.e. observing other people to see how they deal with that given situation). With respect to reliability, internal consistency coefficients of all subscales were comparable to those obtained using the original version. Finally, the correlations with other measures revealed the validity and the clinical relevance of the questionnaire.

Regarding the scale's validity, several key elements emerged. Namely, clear and strong correlations emerged between the IERQ factors and the interpersonal subscales Vent and Reassurance-Seek of the theory-based questionnaire DIRE (Dixon-Gordon *et al.*, 2018). These results account for strong convergent validity of the IERQ with another IER measure.

With respect to intra-personal regulation, we observed a relative independence between interpersonal and intra-personal components of emotion regulation. Regarding the correlations with the ERQ, Suppression was not associated with any of the IERQ factors, whereas Reappraisal was correlated with Perspective Taking, Enhancing Positive Affect and Social Modelling. In the case of intra-personal subscales of the DIRE questionnaires, the adaptive strategy Accept was associated only with the subscale Perspective Taking, whereas the maladaptive strategy Avoid was positively associated with all the IER subscales, with the exception of Soothing. Taken together, these results account for a relative independence from IER from intrapersonal regulation strategies, resulting in questions regarding the nature of interpersonal regulation.

The relationships of IERQ subscales with existing measures also provide some insight into the nature of IER as measured by the IERQ. When considering the implications of IER research for emotional disorders conceptualization and treatment, early models of IER have started from the hypothesis of a positive adaptive value of IER as a mediator factor in the widely described negative association between depression and social support (Christensen & Haynos, 2020; Dagnino et al., 2017; Marroquín, 2001). Subsequent contributions, instead, have observed negative consequences of IER in perpetuating psychopathological symptoms, such as with exaggerated dependency on others to regulate one's own emotions (Hoffman, 2014). This would be also in line with the idea of individual development as a transition from a complete dependence on other (caregiver) to be regulated, to a progressive independence in emotion regulation (Barthel et al., 2018). The data of the present study may contribute to this debate on the nature of interpersonal emotion regulation in several directions. First, the observation of significant correlations between Soothing and Social Modelling with self-reported psychopathology would clearly account for a negative adaptive value of such strategies. In line with this hypothesis, both strategies also strongly correlated with the difficulties in IER evaluated with the DIRE questionnaire (Dixon-Gordon et al., 2018; Messina et al., 2022, in press). In the case of Perspective Taking, instead, we did not observe significant associations with psychopathology, and observing positive correlations with the intra-personal regulation strategies of Reappraisal (evaluated with the ERQ) and Accept (evaluated with the DIRE questionnaire) which are considered effective strategies for regulating emotions and associated with better health outcomes (Aldao et al., 2010; Berking & Wupperman, 2012; Faustino et al., 2020; Werner & Gross, 2010). The factor Enhancing Positive Affect showed a similar pattern of no association with psychopathology but showed a less clear association with positive aspects of emotion regulation. In sum, the prevalent emerging impression is that IER can be maladaptive or adaptive depending on the specific adopted strategy and future studies should clarify the adaptive value of specific IER strategies.

Despite the relevance and merits of this study, some limitations should be acknowledged. First, it should be noted that our research represents a first step towards a complete validation study, since we did not investigate the ability of the model to predict new data. Second, although the sample was large, it was made exclusively of native white Italian individuals, with a bias toward females. Most importantly, the sample was composed of non-clinical subjects, and the investigation in clinical samples would be important in order to draw conclusions regarding the adaptive/maladaptive value of IER strategies. Finally, all measurements for this study relied on self-report data.

In sum, IERQ can extend actual emotion regulation





assessment by including interpersonal processes. Considering both the intrapersonal and interpersonal sides of emotion regulation may offer a more complete view of how emotions are treated in healthy and clinical populations. Many psychological disorders are characterized by abnormal social emotional experiences, with some individuals experiencing excessive avoidance or excessive relying on others to sooth their affective states. In the context of psychotherapy, for example, interpersonal influences of emotion regulation are clearly observable in phenomena such as patients' overreliance or underuse of the therapist (Talia et al., 2019) or of the group (Di Riso et al., 2011; Marogna & Caccamo, 2014) to regulate emotions We hope that by expanding the IERO to the Italian language, that we can continue to shed light on such processes and work towards better understanding emotion regulation from an interpersonal point of view.

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