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Empirical Article

Emotional competencies and psychological distress: Is loneliness a mediating factor?

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Emotional competencies, such as emotion regulation and empathy, are essential for social interaction. Impairment of these skills has been associated with increased rates of anxiety/depressive symptoms and loneliness, which has been defined as the discrepancy between the desired and actual quality and quantity of social relationships a person maintains. The aim of the present study was to shed light on the associations between these constructs and to examine the possible mediating role of loneliness in the relationship between emotional competencies and anxiety/depressive symptoms in a sample of non-clinical individuals. A total of 298 participants were recruited for this study and were asked to complete a series of measures assessing difficulties in emotion regulation, empathy, loneliness, and anxiety/depressive symptoms. Regression and mediation models were tested to analyze the associations between these variables. Results showed that reduced emotional competencies in emotion regulation and empathy were both directly and indirectly associated with increased anxiety/depressive symptoms and emotional loneliness, which in turn was related to higher levels of psychological distress (with a partial mediation of loneliness). Overall, the present findings seem to indicate that emotional competencies play a key role in the experience of loneliness and psychological distress. Therefore, individuals reporting high levels of loneliness in combination with anxious/depressive symptoms should receive appropriate assessment and treatment of emotion regulation and empathic skills.

Key words: Loneliness, emotional competencies, empathy, emotion regulation, psychological distress.

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INTRODUCTION

Emotional competencies are essential for social interaction. Emotions are the basis for communicative and interpersonal functions, for conveying information about other people's thoughts and feelings, and for coordinating social interactions (Lopes, Brackett, Nezlek, Schütz, Sellin & Salovey, 2004).

Therefore, to navigate the social world, people must effectively process and manage emotional information. Emotional competencies have been defined differently based on the various theoretical models that have been proposed (Bar-On & Parker, 2000). For instance, in the model of Goleman (1995), emotional intelligence is considered as a set of innate or acquired competencies that can be enclosed in the following categories: (1) self-awareness; (2) motivation; (3) self-regulation; (4) empathy; and (5) adaptability in relationships (Goleman, 1998). Therefore, factors such as the ability to regulate one's own emotions (i.e., emotion regulation), and to accurately perceive others' emotions (i.e., empathy) can generally be counted as emotional competencies (Goleman, 1995; Vaida & Opre, 2014).

Similarly, we refer to a complex construct when we speak of emotion regulation, which includes not only the ability to modulate emotional arousal, but also the degree of consciousness, comprehension, and acceptance of emotions. It also encompasses the ability to control impulsive conducts when we experience negative emotions and the ability to adapt emotion management strategies according to the demands and goals of the situation (Gratz & Roemer, 2004). The proper functioning of these skills turns out to be essential for us to be able to handle social situations and have us enact behaviors that are considered proper. In the same way, empathy, defined as the ability to experience and understand others' feelings without confusing themselves with others (Decety & Lamm, 2006), is critical to interpersonal functioning as it enables us to understand, share and react to others' feelings, gestures, and thoughts (Baron-Cohen & Wheelwright, 2004; Di Tella, Adenzato, Catmur, Miti, Castelli & Ardito, 2020; Di Tella, Miti, Ardito & Adenzato, 2020).

Reduced emotion regulation and empathic abilities have been shown to be linked to an adverse mental health status, with increased rates of anxiety and depressive symptoms (D'Avanzato, Joormann, Siemer & Gotlib, 2013; Niu, Taylor, Wicks *et al.*, 2023; Schäfer, Naumann, Holmes, Tuschen-Caffier & Samson, 2017; Tone & Tully, 2014) and loneliness (Di Tella, Adenzato, Castelli & Ghiggia, 2023).

Particularly, loneliness is a worldwide phenomenon (Luhmann, Buecker & Rüsberg, 2023; Surkalim, Luo, Eres *et al.*, 2022) that is defined as an unpleasant subjective feeling that stems from the awareness that the quantity or quality of significant social bonds is unsatisfactory (Hawkley & Cacioppo, 2010). Loneliness, then, refers not to the objective component of social isolation (i.e., a poor social network or few contacts with others), but to the individual negative experience of feeling isolated, often accompanied by social pain, sadness, and emptiness (Weiss, 1973).

Previous evidence has highlighted that loneliness is connected to both physical and psychological negative consequences. Specifically, loneliness has been related to increased risk of

elevated blood pressure (Hawkley, Masi, Berry & Cacioppo, 2006) and other adverse health outcomes (e.g., metabolic syndrome, functional disability, dementia, and mild cognitive impairment) (Hawkley, 2022). Similarly, available data suggest that loneliness is related with increased levels of depression (Cacioppo, Hawkley & Thisted, 2010), anxiety (Danneel, Geukens, Maes *et al*., 2020; Danneel, Nelemans, Spithoven *et al*., 2019), and lower life satisfaction (Salimi, 2011).

Given the critical role that appropriate social relationships play in human life, it is not unexpected that perceptions of loneliness and isolation may result in decreased physical health and psychological well-being. Several theoretical models have been suggested to clarify the persistent link between loneliness, diminished emotional competencies, and negative mental health outcomes (e.g., (Vanhalst, Soenens, Luyckx, Van Petegem, Weeks & Asher, 2015)). Specifically, two different, but related, perspectives have been put forth about how people respond when they experience loneliness (Vanhalst *et al*., 2015). On the one hand, the loneliness-perpetuation perspective assumes that loneliness can reduce responsiveness to the benefits of interpersonal situations, with individuals engaging in dysfunctional behaviors that do not allow them to satisfy their need for belongingness. Indeed, previous studies have found that lonely individuals deal with stressors (including social ones) through withdrawal rather than active coping (Cacioppo, Ernst, Burleson *et al*., 2000; Heinrich & Gullone, 2006). Similarly, lonely people have been shown to be hypervigilant in the face of social threats and tend to trust others less and be more hostile (Cacioppo & Patrick, 2008).

The loneliness-reduction perspective, on the other hand, assumes that the unmet need for belongingness may lead individuals to reduce this discrepancy by actively seeking interaction with others. For example, lonely participants have been found to exhibit greater social monitoring than non-lonely individuals, with the former reporting greater recall of social events and increased attention to emotional vocal tones compared to the latter (DeWall, Maner & Rouby, 2009). Although these findings seem to demonstrate an increased sensitivity of lonely individuals to social stimuli, this response may not always represent an adaptation mechanism to the social world. In fact, if sensitivity is too high, it may be counterproductive in social relationships, leading lonely individuals to engage in avoidance behaviors to protect themselves from signals of rejection. Reduced emotional skills can exacerbate this vicious cycle by increasing feelings of isolation and levels of distress (DeWall *et al*., 2009). For instance, individuals who usually adopt maladaptive emotion regulation strategies (e.g., rumination) may experience high distress to stressors, requiring further coping resources and thus increasing the probability that social relationships are considered as inappropriate sources of help (Kearns & Creaven, 2017).

Support for this model comes from some previous evidence that has examined the association between emotional competencies and anxiety/depressive symptoms and the mediating role of loneliness in this relationship (Caputi, Pantaleo & Scaini, 2017; Moeller & Seehuus, 2019). For example, Moeller and Seehuus (2019) investigated the potential mediating role of loneliness in the relationship between social abilities and psychological distress, showing that different social skills were significantly linked (particularly, social expressivity and social control negatively and social sensitivity positively) to the presence of anxiety/depressive symptoms and that these associations were mediated by loneliness in a sample of young adults. Similarly, the study by Caputi and colleagues (2017) observed a sample of preadolescents to investigate the association between Theory of Mind, loneliness, and depressive symptoms. The authors found that loneliness significantly mediated the association between socio-cognitive understanding and depressive symptoms, but only in the female gender. However, the available evidence in non-clinical populations is still limited and the majority of studies have been conducted with adolescents or young adults.

Therefore, the current study intends to further explore the psychological mechanisms that may be involved in the experience of loneliness and distress in adults as well. To this end, we examined the relationship between emotional competencies (i.e., emotion regulation and empathy), loneliness, and psychological distress (anxiety/depressive symptoms) in a group of non-clinical participants covering a broad age range, encompassing youth, middle age, and adulthood. Specifically, we hypothesized that reduced emotional competencies could be significantly associated with increased levels of loneliness and anxiety/depressive symptoms, and that loneliness might mediate the link between emotional competencies and psychological distress.

METHODS

Participants and procedure

Data were gathered from May 5, 2021 to September 23, 2021 through an anonymous survey. A "snowballing" strategy was employed: participants were first reached via online advertisements and then asked to forward the link to others. The following exclusion criteria were established: < age under 18 years, education level under 5 years, low proficiency in Italian; presence of severe psychiatric and/or neurological disorders (evaluated by self-rated yes/no questions). Two hundred ninety-eight participants met the inclusion criteria and completed the survey. Sociodemographic characteristics of the total group are shown in Table 1.

This study was approved by the University Ethics Committee of Turin (protocol number 181281) and was conducted in accordance with the Declaration of Helsinki. Informed consent was obtained from all participants before the start of the study.

Measures

Participants filled in a series of measures as part of a broader investigation, but only those instruments relevant to the present research question are described here.

Sociodemographic and clinical information. Participants were required to indicate the following sociodemographic and clinical data: age, gender, educational level, occupation, marital status, and presence or history of a psychiatric-neurological disorder (for inclusion/exclusion criteria).

Loneliness. The Italian version of the De Jong Gierveld Loneliness Scale (DJGLS) was used to assess loneliness (De Jong-Gierveld & Kamphuls, 1985; Zammuner, 2008). It consists of 11 items, six negatively formulated (i.e., "I miss having a really close friend") and five positively formulated (i.e., "There are many people I can trust completely") with the following three response categories: "no," "more or less," and "yes." Each

Table 1. *Sociodemographic characteristics of the total sample (N = 298)*

	Mean (*SD*)	*n* (%)	Range
Age (years)	34.53 (13.75)		18–68
Gender			
Female		228 (76.5)	
Male		70 (23.5)	
Education			
Primary/secondary/high school diploma		177 (59.6)	
B.Sc. or M.Sc. degree/postgraduate qualification		121 (40.6)	
Profession			
Student		127 (42.6)	
Employed		142 (47.7)	
Unemployed		24 (8.1)	
Retired		5 (1.7)	
Marital status			
Single		89 (29.9)	
In a relationship		79 (26.5)	
Cohabitant		22 (7.4)	
Married		93 (31.2)	
Separated/divorced		12 (4.0)	
Widower		3 (1.0)	

Note: DJGLS = De Jong-Gierveld Loneliness Scale; DERS = Difficulties in Emotion Regulation Scale; EQ = Empathy Quotient; GAD-7 = General Anxiety Disorder; BDI-II = Beck Depression Inventory.

item is considered as a dichotomous variable with "more or less" being merged with "no" for the positive items and with "yes" for the negative ones.

The total score is the sum of the item scores, ranging from 0 (not lonely) to 11 (extremely lonely). A score of 3 or higher is indicative of loneliness (van Tilburg & de Jong Gierveld, 1999).

The DJGLS has shown good psychometric properties, with good internal consistency (e.g., Giraldo-Rodríguez, Álvarez-Cisneros & Agudelo-Botero, 2023; Hosseini, Froelicher, Sharif Nia & Ashghali Farahani, 2021). In our sample, Cronbach's alpha values for the DJGLS were as follows: total score: 0.84 (95% CI, 0.81; 0.86); "Emotional" subscale 0.74 (95% CI, 0.69; 0.79); "Social" subscale 0.83 (95% CI, 0.80; 0.86).

Emotional competencies. The Italian short-form version of the Empathy Quotient (EQ) was used for the evaluation of empathy (Muncer & Ling, 2006; Paolo Senese, De Nicola, Passaro & Ruggiero, 2018). It is made up of 15 items rated on a four-step scale ranging from "strongly disagree" to "strongly agree" (e.g., "I am good at predicting how someone will feel"). The total score ranges from 0 to 30 (non-empathic responses are scored 0, while empathic responses receive 1 or 2 points, depending on the degree of empathy), with higher scores indicating greater empathy.

The EQ has been found to have good internal consistency and validity indices (Muncer & Ling, 2006; Paolo Senese *et al*., 2018). In our sample, Cronbach's alpha for the EQ-15 was 0.71 (95% CI, 0.66; 0.76).

The Italian adaptation of the Difficulties in Emotion Regulation Scale short version (DERS-16) was used to measure the ability of emotion regulation (Bjureberg, Ljótsson, Tull *et al*., 2016). The DERS-16 contains 16 items (e.g., "When I'm upset, I become out of control") rated on a five-point Likert scale ranging from 1 (almost never) to 5 (almost always), with a total score and five subscale scores. Higher scores on the DERS-16 indicate greater difficulty with emotion regulation. In the study, according to our purposes, only the total score was utilized.

The DERS-16 has been found to have excellent internal consistency (Cronbach's alpha ranging from 0.92 to 0.95), good test–retest reliability, and good convergent and discriminant validity (Bjureberg *et al*., 2016). In our sample, Cronbach's alpha values for the DERS-16 were as follows: total score 0.92 (95% CI, 0.90; 0.93); "Non acceptance" subscale 0.80 (95% CI, 0.75; 0.83); "Goals" subscale 0.82 (95% CI, 0.78; 0.85); "Impulse" subscale 0.66 (95% CI, 0.75; 0.83); "Strategies" subscale 0.90 (95% CI, 0.89; 0.92); "Clarity" subscale 0.88 (95% CI, 0.58; 0.72).

Anxiety/depressive symptoms. To evaluate anxiety symptoms, the General Anxiety Disorder-7 (GAD-7) was used (Spitzer, Kroenke, Williams & Löwe, 2006). It consists of seven items (e.g., "Feeling nervous, anxious, or on edge") rated on a four-point Likert scale ranging from 0 (not at all) to 3 (nearly every day). Total scores range from 0 to 21, with higher scores indicating higher levels of anxiety symptoms. The GAD-7 has shown good psychometric properties, with good internal consistency (e.g., Shevlin, Butter, McBride *et al*., 2022). In our sample, the internal reliability of GAD-7 estimated by Cronbach's alpha was 0.88 (95% CI, 0.82; 0.90).

Depressive symptoms were assessed with the Beck Depression Inventory-II (BDI-II) (Beck, Steer, Ball & Ranieri, 1996; Sica & Ghisi, 2007). It consists of 21 groups of statements, each rated on a four-point Likert scale, that evaluate the symptoms of depression including sadness, loss of pleasure, suicidal thoughts, irritability, changes in appetite, and more. The total score ranges from 0 (no depressive symptoms) to 63 (severe depression).

The BDI-II has shown good psychometric properties, with good internal consistency, test–retest reliability and construct validity (Sica & Ghisi, 2007). In our sample, Cronbach's alpha for the BDI-II was 0.91 (95% CI, 0.90; 0.93).

Statistical analysis

Statistical analyses were performed using the Statistical Package for Social Sciences (SPSS) version 26.0 (IBM, Armonk, NY, USA).

Normal distribution was assessed using the indices for asymmetry and kurtosis. All variables were normally distributed. A priori power analysis was performed, using the software G* Power 3.1 (Faul, Erdfelder, Buchner & Lang, 2009), estimating a mean effect size, a power greater than 0.80, and an alpha level of 0.05 for a multiple regression analysis with four predictors. The required minimum sample size was 85 participants.

First, descriptive data of the total sample was computed to provide an overview of the socio-demographic and psychological characteristics of the respondents. Descriptive data were presented as means with standard deviations for continuous variables or frequencies with percentages for categorical variables.

To achieve the primary aim of the present study, four hierarchical multiple regression analyses were performed to evaluate whether emotional competencies were still significant predictors of psychological distress symptoms when controlling for loneliness. For each regression analysis, the following three models were tested: demographic variables (age and gender) were included in the first model, followed by the addition of emotional competencies in the second model, and loneliness in the third model. The first and second regression analyses treated anxiety as an outcome and examined emotion regulation and empathy as measures of emotional competence, respectively; the third and fourth regression analyses treated depression as an outcome and examined emotion regulation and empathy as measures of emotional competence, respectively. Demographic variables (age and gender) theorized as being related to anxiety or depressive symptoms (Faravelli, Scarpato, Castellini & Sauro, 2013) were included in the models to control for their potential effect. The enter method was used. Collinearity was assessed using the statistical factor of tolerance and Variance Inflation Factor (VIF).

Finally, the PROCESS macro 4 for SPSS (model 4) was employed to verify the possible statistical mediation of loneliness in the association between emotional competencies (emotion regulation/empathy, independent variables) and psychological distress (anxiety/depressive symptoms, dependent variables). Four mediation models were tested. Ninety-five percent confidence intervals (CI) were calculated based on 5,000 bootstrap samples.

RESULTS

Psychological data

With regard to psychological data, participants reported a total mean score of 5.60 (SD 3.11) at the DJGLS (range score 0–11), of 37.93 (SD 13.05) at the DERS (range score 16–74), and of 17.51 (SD 4.62) at the EQ (range score 7–29). In addition, participants obtained a total mean score of 8.53 (SD 4.77) at the GAD-7 (range score 0–20) and of 12.61 (SD 10.16) at the BDI-II (range score 0–63), which were indicative of no anxiety and mild depression, respectively.

Multiple regressions

To examine whether emotional competencies (emotion regulation and empathy), considered separately, were still significant predictors of anxiety and depressive symptoms after controlling for loneliness, four hierarchical multiple regression analyses were conducted. The GAD-7 and the BDI-II were entered as dependent variables in the regression analyses.

As far as the relationship between anxiety and difficulty in emotion regulation was concerned, the full model of age, gender, emotion dysregulation, and loneliness predicting anxiety symptoms (Model 3) was statistically significant, adjusted $R^2 = 0.440$ (Standard Error, $SE = 3.568$), $F(4, 293) = 59.316$, $p < 0.001$. In this case, both DERS-16 total score ($\beta = 0.583$, $p < 0.001$) and DJGLS total score ($\beta = 0.100$, $p = 0.033$), and gender ($\beta = 0.152$, $p = 0.001$), were found to be significant predictors of GAD-7 scores in the final model (Table 2).

Regarding the association between anxiety and empathy, the total model of age, gender, empathy, and loneliness predicting anxiety symptoms (Model 3) was statistically significant, adjusted $R^2 = 0.194$ ($SE = 4.280$), $F(4, 293) = 18.875$, $p < 0.001$. Significant predictors of GAD-7 scores were found to be both the EQ total score ($\beta = -0.109$, $p = 0.047$) and the DJGLS total score ($\beta = 0.253$, $p < 0.001$), as well as age ($\beta = -0.221$, $p < 0.001$) and gender ($\beta = 0.183$, $p = 0.001$) (Table 3).

With regard to the relationship between depression and emotion regulation difficulties, the total model of age, gender, emotion dysregulation, and loneliness predicting depressive symptoms (Model 3) was statistically significant, adjusted $R^2 = 0.567$ ($SE = 6.682$), $F(4, 293) = 98.268$, $p < 0.001$. In the final model, both DERS-16 total score ($\beta = 0.603$, $p < 0.001$) and DJGLS total score ($\beta = 0.285$, $p < 0.001$), and gender ($\beta = 0.108$, $p = 0.006$), were statistically significant in predicting BDI-II scores (Table 2).

Finally, regarding the association between depression and empathy, the total model of age, gender, empathy, and loneliness to predict depressive symptoms (Model 3) was statistically significant, adjusted $R^2 = 0.313$ ($SE = 8.420$), $F(4, 293) = 34.775$, $p < 0.001$. In this case, both the EQ total score ($\beta = -0.150$, $p = 0.003$) and the DJGLS total score ($\beta = 0.434$,

Table 2. *Hierarchical multiple regressions predicting GAD-7 and BDI-II scores from sociodemographic variables, difficulties in emotion regulation, and loneliness (N = 298)*

Predictor variables	*B*	*β*	*t*	95% CI	Adj R^2	*F*	ΔR^2	ΔF
GAD-7								
Model 1					0.108	19.072**	0.114	19.072**
Age	−0.087	−0.252	−4.535**	−0.125; −0.049				
Gender	2.089	0.186	3.345**	0.860; 3.318				
Model 2					0.433	76.615**	0.324	169.868**
Age	−0.005	−0.14	−0.288	−0.038; 0.028				
Gender	1.752	0.156	3.514**	0.771; 2.734				
DERS total	0.237	0.620	13.033**	0.201; 0.272				
Model 3					0.447	59.316**	0.009	4.601*
Age	−0.007	−0.021	−0.449	−0.040; 0.025				
Gender	1.710	0.152	3.447**	0.734; 2.686				
DERS total	0.223	0.583	11.594**	0.185; 0.260				
DJGLS total	0.143	0.100	2.145*	0.012; 0.275				
BDI-II								
Model 1					0.071	12.432**	0.078	12.432**
Age	−0.156	−0.208	−3.667**	−0.236; −0.071				
Gender	3.657	0.153	2.694**	0.985; 6.329				
Model 2					0.497	98.642**	0.424	250.067**
Age	0.048	0.064	1.425	−0.018; 0.113				
Gender	2.838	0.119	2.835	0.868; 4.808				
DERS total	0.576	0.709	15.814**	0.505; 0.648				
Model 3					0.567	98.268**	0.071	48.917**
Age	0.031	0.043	1.012	−0.030; 0.093				
Gender	2.579	0.108	2.776**	0.750; 4.407				
DERS total	0.491	0.603	13.643**	0.420; 0.561				
DJGLS total	0.875	0.285	6.994	0.629; 1.121				

Notes: GAD-7 = General Anxiety Disorder; DERS = Difficulties in Emotion Regulation Scale; DERS = Difficulties in Emotion Regulation Scale; DJGLS = De Jong-Gierveld Loneliness Scale; BDI-II = Beck Depression Inventory.
*$p < 0.05$, **$p < 0.01$.

Table 3. *Hierarchical multiple regressions predicting GAD-7 and BDI-II scores from sociodemographic variables, empathy, and loneliness (N = 298)*

Predictor variables	*B*	*β*	*t*	95% CI	Adj R^2	*F*	ΔR^2	ΔF
GAD-7								
Model 1					0.108	19.072**	0.114	19.072**
Age	−0.087	−0.252	−4.535**	−0.125; −0.049				
Gender	2.089	0.186	3.345**	0.860; 3.318				
Model 2					0.138	16.786**	0.032	10.931**
Age	−0.079	−0.228	−4.131**	−0.117; −0.041				
Gender	2.302	0.205	3.727**	1.086; 3.517				
EQ total	−0.186	−0.180	−3.306**	−0.297; −0.075				
Model 3					0.205	18.857**	0.058	21.551**
Age	−0.077	−0.221	−4.139**	−0.113; -0.040				
Gender	2.059	0.183	3.436**	0.880; 3.239				
EQ total	−0.113	−0.109	−1.993*	−0.224; −0.001				
DJGLS total	0.364	0.253	4.642**	−0.210; 0.519				
BDI-II								
Model 1					−0.071	12.432**	0.078	12.432**
Age	−0.154	−0.208	−3.667**	−0.236; −0.071				
Gender	3.657	0.153	2.694**	0.985; 6.329				
Model 2					0.141	17.240**	0.072	24.845**
Age	−0.127	−0.172	−3.117**	−0.207; −0.047				
Gender	0.678	0.034	0.577**	−1.636; 2.992				
EQ total	−0.596	−0.271	−4.984**	−0.832; −0.361				
Model 3					0.313	34.755**	0.172	74.392**
Age	−0.118	−0.160	−3.238**	−0.190; −0.046				
Gender	3.454	0.144	2.929	−0.548; −0.110				
EQ total	−0.329	−0.150	−2.952**	−0.548; −0.110				
DJGLS total	1.331	0.434	8.625**	1.027; 1.635				

Notes: GAD-7 = General Anxiety Disorder; EQ = Empathy Quotient; BDI-II = Beck Depression Inventory; DERS = Difficulties in Emotion Regulation Scale; DJGLS = De Jong-Gierveld Loneliness Scale; BDI-II = Beck Depression Inventory.
*$p < 0.05$, **$p < 0.01$.

$p < 0.001$), as well as age ($\beta = -0.160$, $p = 0.001$) and gender ($\beta = 0.144$, $p = 0.004$), were significant contributors of the final model (Table 3).

In all regression analyses, the statistical factor of tolerance and the VIF showed that there were no confounding interactions between the variables.

Mediation analyses

The results of the regression analyses showed a significant contribution of emotional competencies (EQ and DERS-16 total scores) in explaining anxiety (GAD-7) and depressive symptoms (BDI-II), which was still present after controlling for loneliness. Starting from these results, we assumed that loneliness might be a partial mediator in the relationship between emotional functioning and psychological distress. Therefore, four mediation models were tested.

The first mediation analysis was performed to verify the effect of the DJGLS total score in mediating the association between the DERS-16 total score and the GAD-7. Results showed both a significant direct effect of emotion dysregulation on anxiety ($b = 0.232$, $p < 0.001$) and a significant indirect effect of DERS-16 total score on GAD-7 via DJGLS total score, $b = 0.014$, BCa CI [0.023, 0.027] (Fig. 1). This suggests that greater emotion regulation difficulties were related to higher levels of anxiety symptoms, both directly and indirectly through the effects of emotional loneliness.

The second mediation analysis was carried out to examine the effect of the DJGLS total score in mediating the association between the EQ total score and the GAD-7. Consistent with this assumption, the results showed a significant indirect effect of the EQ total score on GAD-7 by the DJGLS total score, $b = -0.080$, BCa CI [−0.130, −0.040], which was found. Conversely, no evidence was found that empathy had a direct effect on anxiety ($b = -0.116$, $p = 0.051$) (Fig. 2). This suggests that higher levels of empathy were related to lower anxiety symptoms, both directly and indirectly through the effects of emotional loneliness.

The third mediation analysis was run to examine the effect of the DJGLS total score in mediating the association between the DERS-16 total score and the BDI-II. Results showed both a significant direct effect of emotion dysregulation on depression ($b = 0.485$, $p < 0.001$) and a significant indirect effect of DERS-16 total score on BDI-II via the DJGLS total score, $b = 0.082$, BCa CI [0.050, 0.118] (Fig. 3). This suggests that greater emotion regulation difficulties were related to higher levels of depressive symptoms, both directly and indirectly through the effects of emotional loneliness.

Finally, the fourth mediation analysis was performed to test the effect of the DJGLS total score in mediating the association between the EQ total score and the BDI-II. Results confirmed this hypothesis, with both a significant direct effect of emotion dysregulation on depression ($b = -0.331$, $p = 0.004$) and a significant indirect effect of EQ total score on BDI-II via the DJGLS total score, $b = -0.277$, BCa CI [−0.412, −0.157] that

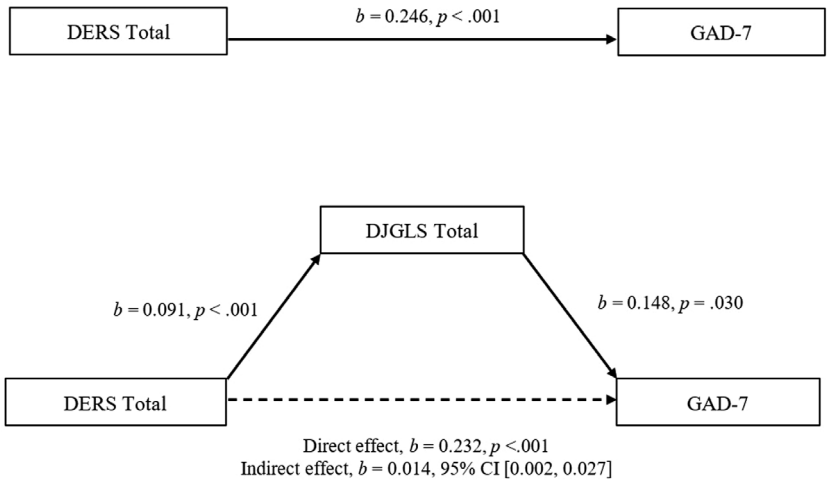

Fig. 1. Model of difficulties in emotion regulation (DERS Total) as a predictor of anxiety symptoms (GAD-7), mediated by loneliness (DJGLS Total). The confidence interval for the indirect effect is a BCa bootstrapped CI based on 5,000 samples.

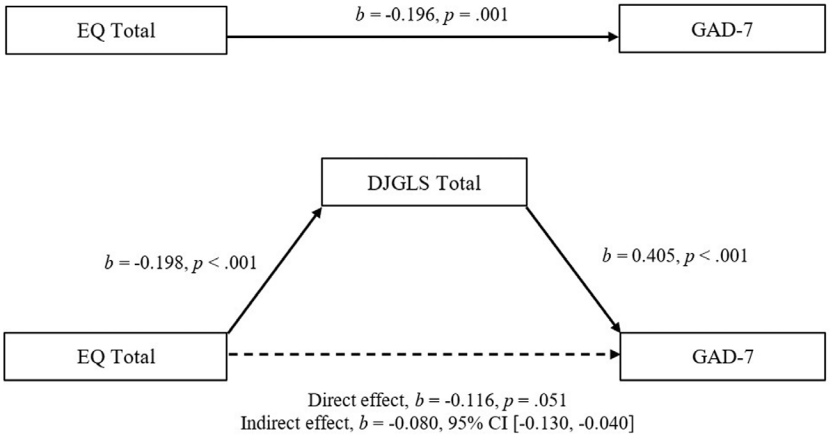

Fig. 2. Model of empathy (EQ Total) as a predictor of anxiety symptoms (GAD-7), mediated by loneliness (DJGLS Total). The confidence interval for the indirect effect is a BCa bootstrapped CI based on 5,000 samples.

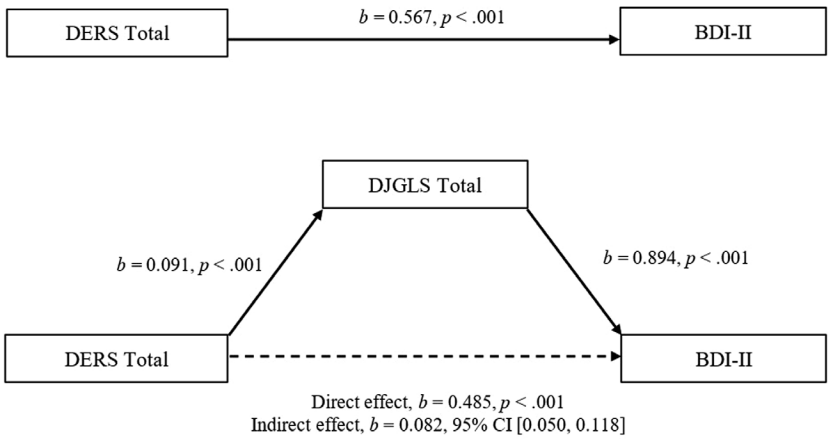

Fig. 3. Model of difficulties in emotion regulation (DERS Total) as a predictor of depressive symptoms (BDI-II), mediated by loneliness (DJGLS Total). The confidence interval for the indirect effect is a BCa bootstrapped CI based on 5,000 samples.

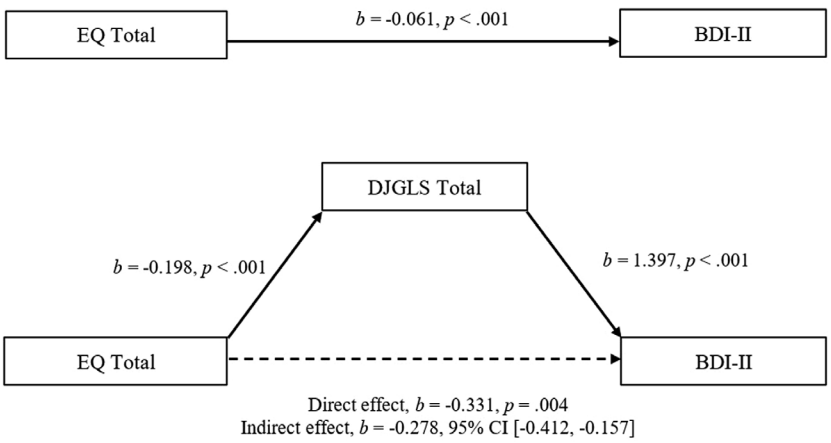

Fig. 4. Model of empathy (EQ Total) as a predictor of depressive symptoms (BDI-II), mediated by loneliness (DJGLS Total). The confidence interval for the indirect effect is a BCa bootstrapped CI based on 5,000 samples.

were found (Fig. 4). This suggests that higher levels of empathy were related to lower depressive symptoms, both directly and indirectly through the effects of emotional loneliness.

DISCUSSION

The present study aimed to elucidate the association between emotional competencies, loneliness, and psychological distress in a sample of non-clinical individuals. To achieve this purpose, we examined the potential mediating role of loneliness in the relationship between emotional competencies and anxiety/depressive symptoms.

Our results seem to show that emotion regulation and empathy have both a direct (with the only exception of empathy on anxiety) and an indirect effect on psychological distress, with loneliness proving to be a significant mediator in the relationship between the two emotional competencies and anxiety/depression levels. In other words, lower emotional competency skills appear to be associated with greater psychological distress and increased feelings of loneliness. Those results appear to confirm the few previous research that have examined similar models in non-clinical populations, showing a negative and reciprocal association between those constructs (Caputi *et al.*, 2017; Moeller & Seehuus, 2019).

Appropriate emotional competencies are essential for navigating the social world, with positive implications for interpersonal relationships that have been widely documented (Batson, Lishner & Stocks, 2015). On the one hand, emotion regulation skills allow individuals to modulate and control their emotions depending on the situation (Gratz & Roemer, 2004). On the other hand, empathy skills enable us to understand, share, and react to the emotions of others (Baron-Cohen & Wheelwright, 2004). When these abilities are impaired, people may have difficulty forming appropriate and satisfying interpersonal relationships, which can lead to increased levels of loneliness. Indeed, loneliness has been described as a negative emotional state caused by the perceived disparity between the quantity and quality of actual and desired interpersonal relationships (Preece, Goldenberg, Becerra, Boyes, Hasking & Gross, 2021).

Thus, a plausible explanation for our findings is that people with difficulties in emotion regulation or empathy are more likely to feel lonely, which in turn may lead to an increase in anxiety and depressive symptoms. Previous evidence has shown a strong association between loneliness and distress, often highlighting a bidirectional relationship (Cacioppo *et al.*, 2010; Domènech-Abella, Mundó, Haro & Rubio-Valera, 2019; Santini, Jose, Cornwell *et al.*, 2020). For instance, in a longitudinal study by Santini and colleagues (Santini *et al.*, 2020), social disconnectedness was found to predict higher perceived isolation, which correlated with greater anxiety and depressive symptoms; a reverse pathway was also found, suggesting a bidirectional influence. Similarly, Domènech-Abella *et al.* (2019) indicated that the longitudinal relationship between the experience of loneliness and the increased likelihood of having generalized anxiety disorder or major depression two years later was bidirectional (with one predicting the other and vice versa), but stronger when loneliness was the predictor. More generally, a vicious cycle of loneliness, poor emotional competencies, and psychological distress can be assumed: the current results have shown that reduced emotional competencies may be a risk factor for high levels of anxiety/depressive symptoms, both directly and indirectly through loneliness. However, it is also possible that loneliness may mediate the opposite relationship, placing individuals with elevated anxiety/depressive symptoms at greater risk of being emotionally incompetent, as suggested by other authors (Nakagawa, Takeuchi, Taki *et al.*, 2015; Niu & Snyder, 2023). This vicious cycle can also support the theoretical models of loneliness-perpetuation and loneliness-reduction: when sensitivity to social stimuli is excessively reduced or heightened, lonely individuals may tend to engage in avoidance behaviors to protect themselves from rejection. This tendency can be enhanced by reduced emotional skills and increased levels of psychological distress that lonely people may report (DeWall *et al.*, 2009).

Taken together, these findings seem to suggest that people with reduced emotional competencies are less able to establish and maintain satisfying social relationships: because they have greater difficulty encoding and processing social signals, they may be more likely to withdraw from social interactions. This may result in a greater experience of loneliness and anxiety/depressive

symptoms, which was confirmed in our study by the direct and indirect (mediated by loneliness) associations between emotional competencies and anxiety/depressive symptoms.

From a clinical point of view, it is therefore critical to assess and manage emotional competencies, particularly emotion regulation and empathic abilities, when treating individuals who experience increased loneliness and anxiety/depressive symptoms. In this way, clinicians can help their patients break the vicious cycle that causes lonely individuals who have difficulty with their emotional competencies to avoid social contacts and experience great distress. Several studies have observed that the presence of social relationships facilitates emotion regulation (e.g., (Lindsey, 2020; Marroquín & Nolen-Hoeksema, 2015). Those who experience loneliness tend to use more emotion regulation strategies that are not helpful to them (e.g., avoidance or expressive suppression) and fewer adaptive emotion regulation strategies (e.g., cognitive reappraisal or acceptance). However, loneliness is a complex phenomenon that requires individualized interventions; what works for one person may not necessarily work for another. Therefore, knowing which component of emotion regulation capacity is associated with loneliness allows one to employ alternative interventions to counteract loneliness. In clinical practice, emotion regulation may therefore be a useful aspect to intervene on to reduce loneliness in people with high psychological distress.

Several limitations should be pointed out in the present study. First, to obtain a more accurate assessment of the psychological factors studied, structured interviews could be used as well as self-report questionnaires. Second, our study had a cross-sectional design that does not permit obtaining more precise information on the causality of the relationships found. Third, we did not examine the specific association between emotional competencies, loneliness and the different emotion regulation strategies. Previous evidence seems to suggest that loneliness may be differently associated with the various emotion regulation strategies (Kearns & Creaven, 2017; Preece *et al*., 2021); therefore, future research should consider the specific contribution each strategy might have in the relationship with loneliness and consequently with psychological distress. Fourth, although the study was not related to the COVID-19 outbreak, the data was collected at a significant time, given the restrictive measures and their implications in terms of loneliness. Indeed, many studies highlighted the negative consequences that the pandemic had on the mental health and social relations of individuals, with increased levels of anxiety/depressive symptoms and loneliness that were reported (Guadagni, Umilta' & Iaria, 2020; Luchetti, Lee, Aschwanden *et al*., 2020; Niu *et al*., 2023).

Lastly, our sample included a higher percentage of women and young adults, so the results should be interpreted cautiously in light of these sample characteristics.

CONCLUSION

The present results provide new insights into the psychological mechanisms that may be involved in the experience of loneliness and distress. Specifically, our results seem to show that reduced emotional competencies are associated with increased perception of emotional loneliness, which in turn is related to increased symptoms of anxiety and depression. Loneliness was therefore found to be a partial mediator in the relationship between emotional competencies and psychological distress.

Difficulties in emotion regulation and empathy may lead people to engage in avoidance behaviors to protect themselves from signals of social rejection, which increases feelings of isolation and perceived psychological distress (DeWall *et al*., 2009). Therefore, improving emotional competences may be a useful aspect of reducing loneliness in people with high levels of psychological distress.

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