Loneliness: Association with individual differences in socioemotional skills

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ABSTRACT

Loneliness is defined as the discrepancy between the desired and actual quality and quantity of social relationships a person maintains. Several factors, such as socioemotional skills (emotion recognition, empathy, and emotion regulation), may play a role in the experience of loneliness. Socioemotional skills represent a complex set of abilities that enable individuals to understand, share, and regulate their own feelings and those of others. The present study aimed to investigate whether lonely individuals had greater difficulties in socioemotional skills compared to non-lonely individuals.

A total of 298 participants (age range: 18–68) were recruited for this study and asked to complete a series of measures assessing loneliness, facial emotion recognition, empathy, and difficulties in emotion regulation.

Results of comparisons between lonely and non-lonely participants (De Jong Gierveld Loneliness Scale cut-off score ≥ 3) revealed that the former had higher scores on facial expression recognition of fear, lower levels of empathy, and greater difficulties in emotion regulation compared to non-lonely individuals.

Taken together the present findings indicate that lonely individuals may have greater difficulties with socioemotional skills than non-lonely individuals. Therefore, appropriate assessment of these abilities should be conducted when dealing with people who report high levels of perceived social isolation.

1. Introduction

Loneliness is defined as the discrepancy between the desired and actual quality and quantity of social relationships a person maintains (Perlman & Peplau, 1981). It is estimated that about 15.7 % of the population in Southern Europe experience feelings of loneliness (Surkalim et al., 2022).

Loneliness could also serve as an indicator of well-being. Several studies have shown that people who feel lonely or socially isolated are more likely to report mental health symptoms and have an increased risk of diseases such as cardiovascular disease or stroke (Cacioppo et al., 2015). Humans are indeed socially oriented and social contact is necessary for biological, psychological, and social regulation (Cruces et al., 2014). Specifically, perceived (loneliness) and objective social isolation can have biological effects because they act as social stressors and activate the body's stress response (Cacioppo et al., 2015; Smith et al., 2020).

However, the psychological mechanisms underlying the experience of loneliness are only partially understood. Multiple factors may play a role, such as individual characteristics and contextual aspects. From an individual perspective, socioemotional skills (emotion recognition, empathy, and emotion regulation) represent a complex set of abilities that enable individuals to understand, share, and regulate their feelings and those of others (Di Tella et al., 2020a, 2020b). These skills are essential for coping with social situations and exhibiting appropriate behaviours. Some studies have found that loneliness is associated with decreased or altered socioemotional skills. For example, lonely children and adolescents have been found to be more attentive to potential social threats than their non-lonely peers in eye-tracking tasks, displaying greater social monitoring (Qualter et al., 2015; Spithoven et al., 2017). However, there is also evidence that loneliness in adolescents is associated with poorer recognition of negative emotional stimuli, but better recognition of positive emotions (e.g., Morningstar et al., 2020).

Besides recognising the emotions of others, lonely people also seem to have difficulty regulating their own feelings. Indeed, previous evidence has shown that loneliness might be associated with the use of maladaptive strategies to regulate one's own emotions (e.g., Velotti et al., 2021). However, most available studies in this area have examined relatively small samples, usually of adolescents. Therefore, it is so far unclear whether people who feel lonely are impaired in all

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socioemotional skills or only in some of them.

Given this, the present study aimed to investigate whether individuals who reported higher levels of loneliness had greater difficulties in socioemotional skills compared with individuals who reported lower levels of loneliness. Specifically, we hypothesised that lonely individuals would be more sensitive to negative facial expressions and show less empathy and greater difficulty in emotion regulation than non-lonely individuals.

2. Methods

Data were collected via an anonymous online survey from May 5, 2021, to September 23, 2021. A snowballing strategy was used in which participants (undergraduate students at first) were recruited through online advertisements and encouraged to share the survey link with others.

The exclusion criteria were as follows: <18 years of age, low educational level, insufficient knowledge of the Italian language, and presence or history of severe psychiatric or neurological illness (assessed using yes/no self-assessment questions). A total of 298 participants were eligible for the study and formed the final sample.

Participants completed a number of measures as part of a broader survey, but only those instruments relevant to the current research question are discussed here. Specifically, they were asked to provide sociodemographic information (age, gender, education level, occupation, and marital status) and to complete the following measures: (1) De Jong Gierveld Loneliness Scale (DJGLS) to assess emotional and social loneliness (De Jong Gierveld & Kamphuis, 1985). It consists of 11 items, with total scores ranging from 0 to 11. A score of 3 or higher is indicative of loneliness (Van Tilburg & De Jong Gierveld, 1999). In our sample, the Cronbach's α was good (0.84). (2) Amsterdam Dynamic Facial Expression Set - Bath Intensity Variations (ADFES-BIV) to examine the ability to recognise facial expressions of emotions. For the study, we selected 60 stimuli (from a total of 360 videos): 9 basic and complex emotions +1 neutral control expression, 3 female and 3 male actors expressed at medium intensity (Wingenbach et al., 2016); (3) Empathy Quotient Short Form (EQ) to assess empathic abilities (Muncer & Ling, 2006). It consists of 15 items, with total scores ranging from 0 to 30. Higher scores indicate greater empathic abilities. In our sample, the Cronbach's α was 0.71. (4) Difficulties in Emotion Regulation Scale (DERS-16) to assess difficulties in emotion regulation (Bjureberg et al., 2016). The DERS-16 consists of 16 items, with total scores ranging from 16 to 80. Higher scores reflect greater difficulty with emotion regulation. In our sample, the Cronbach's α was 0.92.

To address the main objective of the study, independent *t*-tests were conducted to assess the presence of statistically significant differences between lonely and non-lonely participants on age, sex, and socioemotional variables (emotion recognition, empathy, and emotion regulation). Effect size was calculated using Cohen's d.

The study was approved by the Ethics Committee of the University of Turin (protocol no. 181281) and conducted according to the Declaration of Helsinki. All participants gave their written informed consent to participate in the study.

3. Results

The sociodemographic characteristics of the sample are shown in Appendix A. No significant differences between groups were found for age (lonely vs. non-lonely individuals, mean ± SD: 33.93 ± 13.70 vs. 36.84 ± 13.83, t [296] = 1.473, p = .142, d = 0.02) or gender (lonely vs. non-lonely women and men: 182 and 55 vs. 46 and 15, χ^2[1] = 0.052, p = .820).

With regard to socioemotional skills, comparisons between lonely and non-lonely participants revealed that the former had higher scores on facial expression recognition of fear (p = .025, d = 0.34), lower levels of empathy (p < .001, d = 0.51), and greater difficulties in emotion regulation (p < .001, d = 0.48) compared to non-lonely individuals (Table 1).

4. Discussion

The main aim of the present study was to shed light on the existence of individual differences in socioemotional abilities (emotion recognition, empathy, and emotion regulation) between lonely and non-lonely individuals. Overall, results showed that lonely participants had higher scores on facial expressions of fear recognition, lower levels of empathy, and greater difficulty with emotion regulation than non-lonely participants.

In terms of emotion recognition, our study showed that lonely individuals recognised facial expressions of fear more accurately than non-lonely participants. The present results are consistent with those of some previous studies reporting that lonely individuals are more sensitive to negative facial expressions of emotion than non-lonely ones. For example, the study by Vanhalst et al. (2017) showed that lonely adolescents were better able to detect facial expressions of sadness and anxiety than non-lonely adolescents. Similarly, Lodder et al. (2016) found that loneliness was associated with increased recognition of angry faces. However, not all evidence is consistent, and other studies have shown that loneliness might be associated with reduced ability to recognise negative emotions (anger or fear) and increased capacity to detect positive emotions (friendliness) (Morningstar et al., 2020; Smith et al., 2022).

Table 1
Emotion recognition, empathy, and emotion regulation scores for lonely vs non-lonely participants. Mean (SD) and *t*-test are listed (N = 298).

	No loneliness (N = 61)	Yes loneliness (N = 237)	Test (df)	p	Effect size (d)
Recognition of other's emotions					
Anger	3.39 (1.76)	3.37 (1.66)	t(246) = 0.56	.956	0.08
Contempt	1.06 (1.28)	1.04 (1.33)	t(251) = 0.11	.917	0.02
Disgust	3.55 (1.46)	3.60 (1.53)	t(274) = −0.23	.822	−0.03
Embarrassment	4.05 (1.47)	4.19 (1.36)	t(268) = −0.64	.522	−0.10
Fear	2.44 (1.62)	3.01 (1.65)	t(265) = −2.25	**.025**	−0.34
Happiness	4.74 (1.22)	4.59 (1.37)	t(268) = 0.73	.467	0.11
Pride	2.55 (1.64)	2.09 (1.83)	t(265) = 1.63	.103	0.25
Sadness	2.81 (1.30)	3.00 (1.34)	t(262) = −0.910	.364	−0.14
Surprise	5.42 (1.18)	5.51 (0.86)	t(275) = −0.64	.526	−0.09
Neutral	5.24 (0.86)	5.04 (1.09)	t(274) = 1.27	.207	0.19
Total score (0–60)	35.11 (6.32)	35.96 (5.24)	t(160) = −0.83	.409	−0.15
Emotion total (0–54)[a]	29.85 (6.20)	30.91 (5.17)	t(165) = −1.08	.281	−0.20
Empathy					
EQ	19.34 (4.45)	17.04 (4.55)	t(296) = 3.54	**<.001**	0.51
Regulation of one's own emotions					
DERS total score	32.67 (11.63)	38.62 (12.44)	t(296) = −3.37	**<.001**	−0.48

df = Degrees of freedom; EQ = Empathy Quotient; DERS = Difficulties in Emotion Regulation Scale.
Bold *p*-values indicate statistically significant results.
[a] Emotion total score does not include neutral facial expressions.

Therefore, on the one hand, the available findings seem to suggest that loneliness may increase social monitoring to promote social bonding and this can enhance the identification of positive emotions in others (e.g., Qualter et al., 2015). On the other hand, loneliness appears to be associated with increased attention to social threat (Cacioppo et al., 2009; Norman et al., 2011), which may lead lonely individuals to overreact to negative emotions and thus avoid social interactions to protect themselves.

Diminished empathic abilities and difficulties in emotion regulation can also bring lonely individuals to further avoid social interactions and perceive higher levels of social isolation.

Particularly, empathy is a key dimension of interpersonal functioning that enables individuals to approach belonging and strengthen social bonds (Zaki, 2014). Accordingly, individuals should be more inclined to empathise with others when they feel socially isolated and dissatisfied with their social relationships. However, if empathic abilities are impaired, this need for affiliation might not be satisfied and people might unconsciously push social partners away. Previous research seems to support both this assumption and our findings, showing a significant association between reduced empathy and poor social functioning in various non-clinical populations (e.g., adolescents and older adults) (Bailey et al., 2008; McMahon et al., 2006). Similarly, difficulties in emotion regulation can increase feelings of loneliness and affect the quantity and quality of interpersonal relationships. Individuals who typically use maladaptive emotion regulation strategies (e.g., rumination and avoidance) may experience a discrepancy between their desired and actual social attachments. For example, individuals who ruminate may become highly distressed in response to stressful events, placing further demands on interpersonal relationships and thus increasing the likelihood that these relationships will be perceived as inadequate sources of support (Kearns & Creaven, 2017). Consistent with our findings, previous studies have reported that lonely people use less adaptive emotion regulation strategies than non-lonely people, which negatively affects their mental health (e.g., Marroquín & Nolen-Hoeksema, 2015).

This study also has some limitations that should be considered. First, this study used a cross-sectional design that did not allow for causal direction. Second, our sample included a high proportion of women, which limits the generalizability of the results. Finally, we did not include control measures to assess depression or social anxiety and used self-report questionnaires to evaluate empathy and emotion regulation. Self-report instruments might have led to misperceptions of difficulties in these skills in some individuals. Indeed, previous research has shown that lonely people might perceive their abilities negatively, which could partially explain the low scores we found for empathy and emotion regulation.

Despite these limitations, the results of the current study indicate that lonely individuals have greater difficulties with socioemotional skills than non-lonely individuals. Therefore, individuals who report high levels of perceived social isolation should have appropriate assessment of these skills.

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CRediT authorship contribution statement

Marialaura Di Tella: Conceptualization, Data curation, Formal analysis, Methodology, Writing – original draft. **Mauro Adenzato:** Conceptualization, Writing – review & editing, Supervision. **Lorys Castelli:** Supervision, Writing – review & editing. **Ada Ghiggia:** Conceptualization, Data curation, Formal analysis, Methodology, Writing – original draft.

Declaration of competing interest

None.

Data availability

Data will be made available on request.

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