

# Navigating the Loneliness Landscape

## Exploring the Relationship between State and Trait Loneliness in a Social Connection Task

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This study investigated the relationship between chronic (trait) loneliness and momentary (state) loneliness in a Social Connection Task meant to elicit warm and positive feelings of connection. Self-reported questionnaire data of trait and state loneliness was collected in conjunction with other related variables such as social anxiety and depression. Findings support the “differential reactivity hypothesis” of loneliness, which states that chronically lonely individuals respond differently to the social information in their environment than non-lonely individuals.

### INTRODUCTION

Loneliness is a negative affective state arising from a perceived discrepancy between actual and desired social relationships (Peplau & Perlman, 1982).

Theories of loneliness suggest that it serves a beneficial function by motivating individuals to reconnect with others, but when this function fails, it can be maladaptive and harmful (Cacioppo & Cacioppo, 2018).

Trait loneliness is a form of this maladaptive loneliness characterized by a chronic, pervasive, and relatively stable tendency to experience feelings of loneliness (Cacioppo & Patrick, 2008).

In contrast, state loneliness is a temporary and situation-specific experience of loneliness often tied to objective social isolation or lack of meaningful connections (Cacioppo et al., 2006; Hawkey et al., 2003).

Using interventions that increase feelings of social connection may be one way to decrease state levels of loneliness (Lindsay et al., 2019), but to date, it is unknown whether state loneliness can decrease in people with higher levels of trait loneliness.

This study aims to investigate how trait loneliness is related to changes in state loneliness and feelings of connectedness after participating in a social connection task, considering and statistically controlling for known covariates such as social anxiety and depression.

The study hypothesized that individuals high in trait loneliness will experience a greater decrease in loneliness after the task (above and beyond social anxiety and depression), that high daily levels of state loneliness will predict a similar effect in the post-task loneliness change, and that trait loneliness will predict daily levels of state loneliness.

### METHODS

#### PARTICIPANTS

A total of 87 participants (62 women, 23 men, and 2 non-binary individuals) aged 18 to 28 years ( $M = 19.85$ ,  $SD = 1.67$ ) were recruited for this study from undergraduate psychology courses through SONA systems. Participants were required to meet exclusion criteria (that apply to other, unrelated research questions that are being asked through the use of these data) and provide contact information of 5-6 close friends and family members for the study.

#### PROCEDURE

**PART 1:** 2-hour in-lab session, questionnaires, nominating Close Others

**PART 2:** 1-week period, Ecological Momentary Assessments (EMAs)

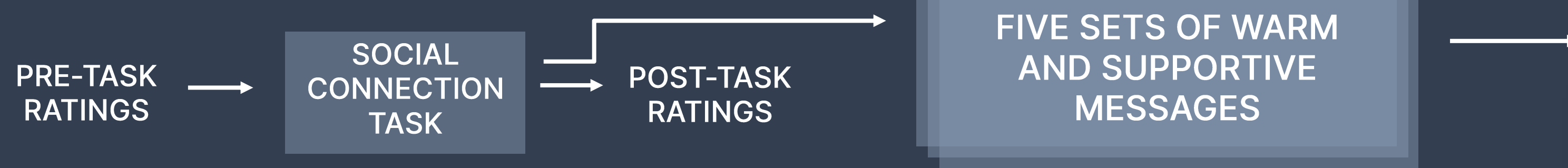
**PART 3:** 2-hour session, Social Connection Task, Saliva Samples

#### MEASURES:

The constructs of **trait loneliness**, **state loneliness**, **task-related changes in loneliness**, **social anxiety**, and **depression** were measured using self-report behavioral questionnaires.

- Trait Loneliness:** The 20-item UCLA Loneliness Scale assesses trait levels of loneliness, (e.g. “How often do you feel that there is no one you can turn to?”) rated based on how frequently participants felt the item described them, from one (“never”) to four (“always,” high loneliness). Composites were formed by taking the sum of all items.
- Daily Levels of State Loneliness:** Ecological Momentary Assessments (EMAs) completed 4x/day for a week assessed in-the-moment feelings of loneliness (“How lonely do you feel right now?”) rated from one (“not at all”) to four (“a lot”). Composite was formed averaging scores across all 28 assessments ( $\alpha = .80$ ).
- Task-Related Changes in State Loneliness:** A measure of state loneliness was completed before and after the Social Connection Task (“Right now, how lonely do you feel?”) rated from one (“not at all”) to four (“a lot”). The post-task score was subtracted from the pre-task score to create a change score.
- Social Anxiety:** Composite of the 20-item Social Phobia Scale ( $\alpha = 0.92$ ), 20-item Social Interaction Anxiety Scale ( $\alpha = 0.94$ )—both rated from one (“not at all”) to five (“extremely”)—as well as 24-item Leibowitz Social Anxiety Scale ( $\alpha = 0.95$ ) rated on the degree of fear from zero (“none”) to three (“severe”) and avoidance from zero (“never”) to three (“usually”) of social situations.
- Depression:** 11-item Depressive Symptoms subscale of the Mood and Anxiety Symptom Questionnaire assessed feelings in the last week (e.g. “Felt worthless”) on a scale from one (“not at all”) to five (“extremely,” indicating high depression). Items were averaged to form a composite ( $\alpha = 0.93$ ).

#### SOCIAL CONNECTION TASK (Inagaki et al., 2016)



*Stimuli.* Participants were presented with warm and positive messages provided by their close others, which were gathered by asking close others to provide 8 brief positive messages addressing the participant. Close others were also asked to rate how close and connected they are to the participant. When at least five close others had responded, a personalized social connection task was created for each participant, using the messages provided by these close others.

*Procedure.* In the task, messages were presented in sets of eight, grouped by the close others who had written them. Participants rated on a scale of 1 to 7 how connected, touched, and warm they feel in response to these messages, as well as how grateful they currently feel, and how good, pleasant, unpleasant, and enjoyable the messages were to read. Participants repeated this process for 5 sets of messages, which took approximately 10 minutes to complete.

“You are one of the most thoughtful, empathic, genuine human beings I have ever met.”

“You mean the world to me. I love you unconditionally.”

“You light up every room you walk into. Even if you don’t realize it, your smile is contagious.”

“I love seeing your passion come alive when any given subject or topic piques your interest.”

### Correlations among Loneliness, Social Anxiety, and Depression

#### LONELINESS:

Trait loneliness is significantly correlated with state loneliness ( $r = .48$ ,  $p < .01$ ), indicating that individuals who report feeling more lonely in general are also more likely to feel lonely in the moment

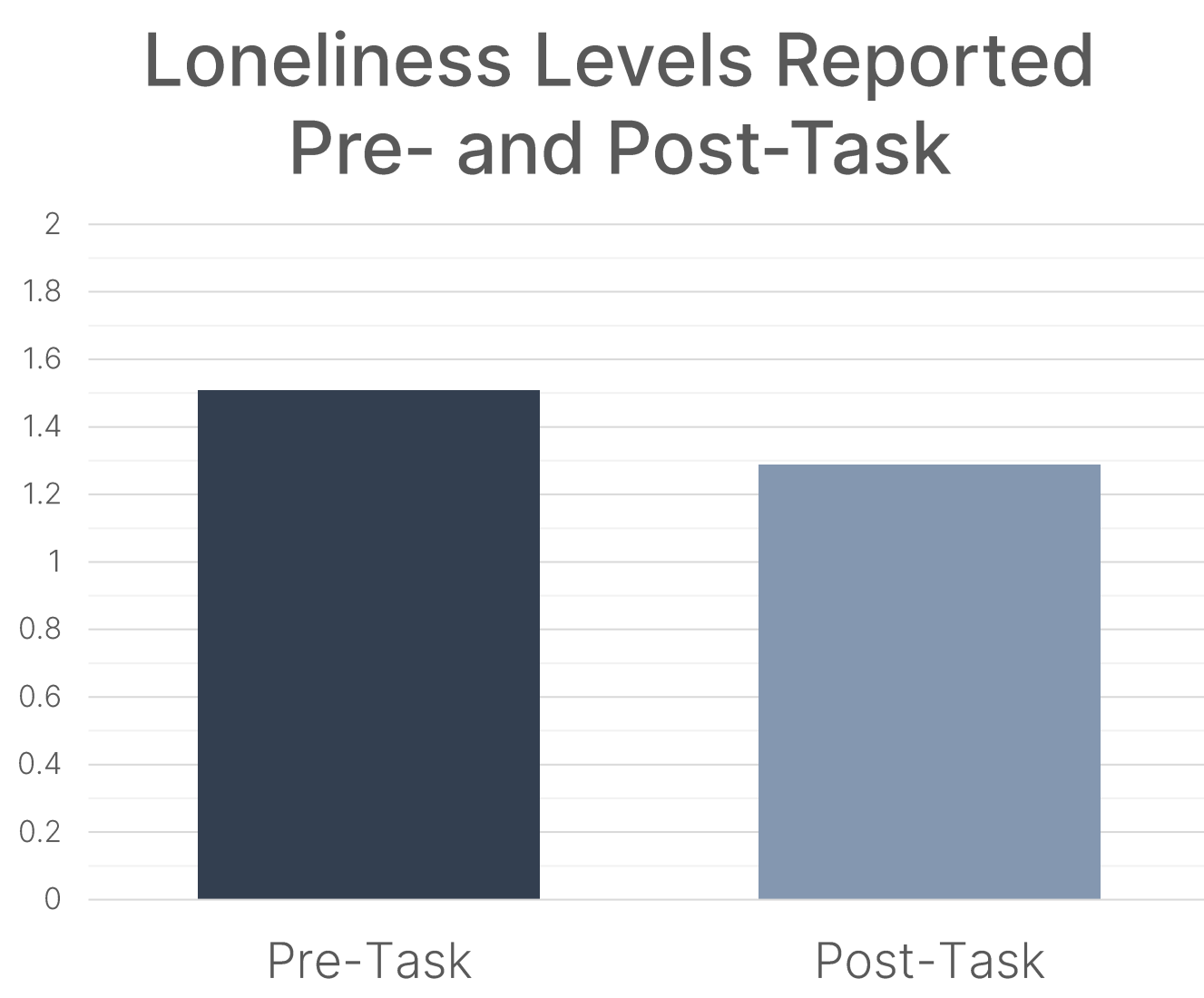
#### SOCIAL ANXIETY:

Social Anxiety is significantly correlated with trait loneliness ( $r = .47$ ,  $p < .01$ ) and state loneliness ( $r = .29$ ,  $p < .01$ ), indicating that individuals who experience more social anxiety are also more likely to report feeling lonely in general and in the moment.

#### DEPRESSION:

Depression is significantly correlated with trait loneliness ( $r = .55$ ,  $p < .01$ ), state loneliness ( $r = .55$ ,  $p < .01$ ), and social anxiety ( $r = .61$ ,  $p < .01$ ), indicating that individuals who experience more depression are also more likely to report feeling lonely in general, in the moment, and have higher levels of social anxiety.

**These results suggest that individuals who experience higher levels of trait loneliness are more likely to experience higher levels of state loneliness, social anxiety, and depression.**



### Significant decrease in loneliness reported following Social Connection Task.

A paired samples t-test shows a significant difference in the mean scores of the paired measures of loneliness,  $t(71) = 2.707$ ,  $p = .008$ . Participants reported feeling significantly less lonely after the task ( $M = 1.29$ ,  $SD = .488$ ) compared to before ( $M = 1.51$ ,  $SD = 0.750$ ).

**This finding suggests that the Social Connection Task results in a decrease in momentary feelings of loneliness.**

### Trait loneliness positively predicts a decrease in loneliness following the Social Connection Task.

A regression analysis was conducted to predict the change in loneliness reported pre- and post- a social connection task using trait loneliness, daily levels of state loneliness, depression, and social anxiety as predictors.

The results indicated that only trait loneliness significantly predicted changes in loneliness ( $\beta = .396$ ,  $t(69) = 2.848$ ,  $p = .006$ ). In the model, trait loneliness accounted for 17.2% of the variance in changes in loneliness, above and beyond social anxiety, depression, and daily levels of state loneliness. The model was statistically significant,  $F(4, 65) = 4.651$ ,  $p = .002$ . These findings suggest that trait loneliness is a strong predictor of changes in loneliness in response to a social connection task, while daily levels of state loneliness, depression, and social anxiety did not significantly contribute to the model.

**Overall, this suggests that people who have a higher tendency towards trait loneliness may experience more benefit from social connection interventions.**

### DISCUSSION

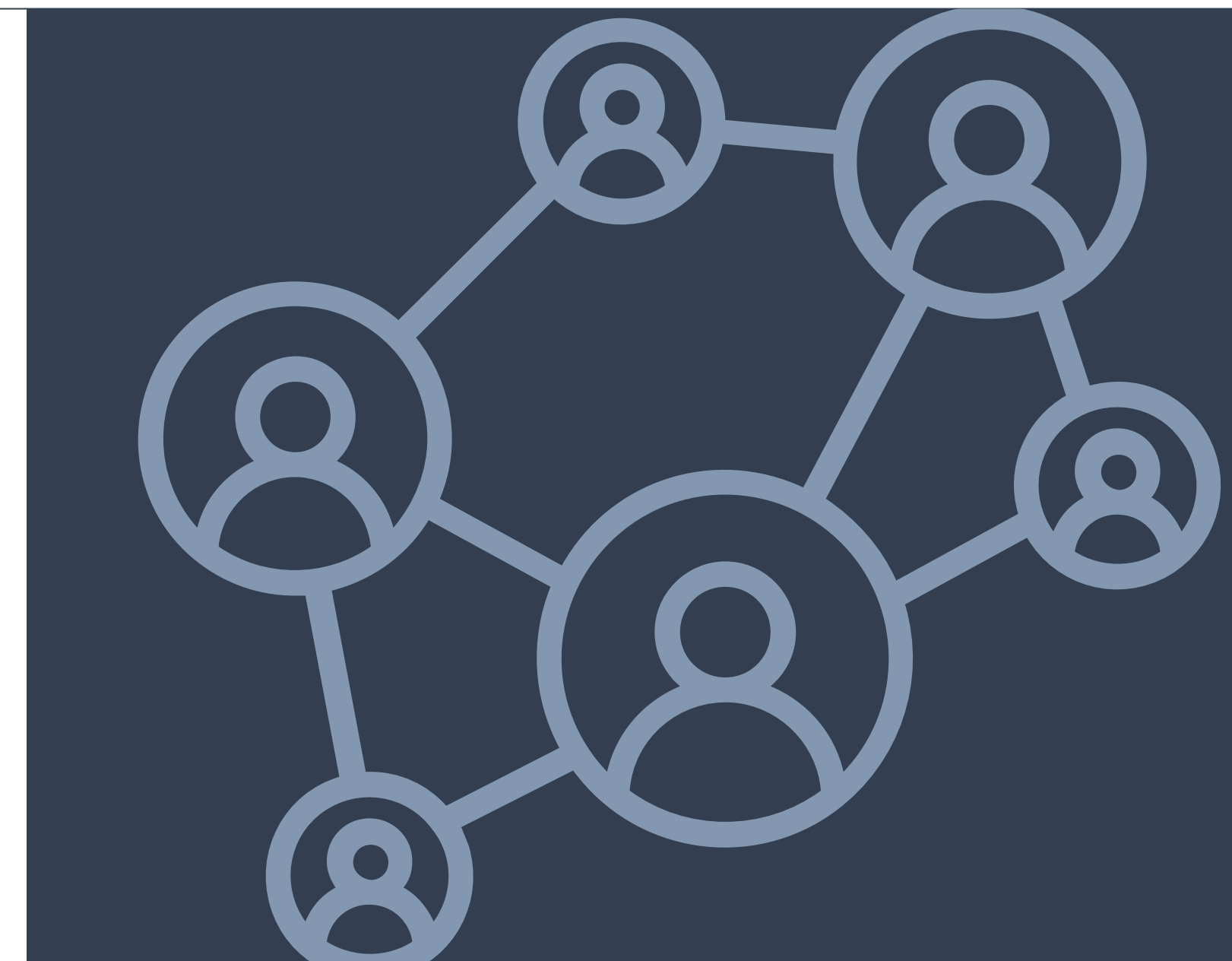
The present study examined the relationship between trait loneliness, state loneliness, social anxiety, and depression, as well as the impact of a social connection task on changes in loneliness. Results indicate that there was a significant decrease in loneliness reported following the Social Connection Task, indicating its positive impact on loneliness levels. Additionally, trait loneliness is a strong predictor of changes in loneliness in response to social connection, while daily levels of state loneliness, depression, and social anxiety did not significantly contribute to the model. This suggests people who experience more chronic feelings of loneliness may experience more benefits from social connection interventions. Overall, these findings highlight the importance of addressing trait loneliness in social connection interventions and the need for further research to explore the complex relationships between loneliness, social anxiety, and depression.

**The key implication of these findings is support for the Differential Reactivity Hypothesis of loneliness, which states that chronically lonely individuals respond differently to the social information in their environment than non-lonely individuals. This is incredibly important for how we conceptualize, study, and treat loneliness in the future.**

#### Means, Standard Deviations, and Inter-correlations

	1	2	3	4	5	
1. Trait Loneliness	--					
2. State Loneliness	.48**	--				
3. Social Anxiety	.47**	.29**	--			
4. Depression	.55**	.55**	.61**	--		
5. Change in Loneliness	.36**	.26*	-.03	.17	--	
	<i>M.</i>	40.27	1.60	-0.04	2.35	.22
	<i>SD.</i>	11.04	.52	.92	.89	.70

Note:  $N = 70$ . \* $p < .05$ . \*\* $p < .01$ .



### Trait Loneliness Predicting Task-Related Change in Loneliness



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