It's Lonely at the Top (of the Pandemic): Depression Mediates the Impact of Loneliness on Pain-Related Catastrophizing during COVID-19

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INTRODUCTION

- Feelings of loneliness increased during the pandemic-related social distancing, potentially exacerbating negative cognitions about pain.
- Individuals with chronic pain may have been more at risk of isolation as a result of social distancing guidelines, and consequently worsen pain.
- Chronic pain is often comorbid with depression, and thus, depression may link feelings of loneliness and negative cognitions about pain.
- Because pain catastrophizing is a modifiable risk factor, it is important to identify factors related to increased catastrophic pain-related cognitions as a means of indirectly reducing pain.

STUDY AIMS

Aim 1: Investigate the longitudinal relationship between loneliness during the early weeks of the pandemic and the degree of pain catastrophizing during the pandemic year.

Aim 2: Examine whether depression during the pandemic year explained this relationship.

METHODS

- Participants (n=93) living with chronic pain (pain for ≥3 months) completed two sets of electronic questionnaires.
- The initial set of questionnaires was completed from April 28-June 17, 2020 (Time 1, T1) and the follow-up survey a year later from May 21-June 7, 2021 (Time 2, T2).
- The 3-item UCLA Loneliness Scale Version 3 assessed feelings of loneliness at T1.
- The 13-item Pain Catastrophizing Scale assessed negative cognitions about pain at T1 and T2.
- The 8-item depression short form from the Patient Reported Outcome Measurement Information System was used to measure depressive symptoms at T2.
- Covariates from T1:
  - One item from the Brief Pain Inventory assessed average pain intensity and 7 items assessed pain interference.
  - Patients indicated whether or not ('yes' or 'no') they typically take any medications for their pain.

RESULTS

- Spearman correlations and Mann-Whitney U test were used to explore associations between psychosocial, pain, and demographic characteristics (Table 1).
- Greater feelings of loneliness (T1) were associated with higher levels of pain catastrophizing (T2) (Figure 1).
- Pain catastrophizing (T2) was associated with greater depression, pain severity and pain interference, pain medication use, and baseline catastrophizing (T1).

Table 1.

	Mean (SD) or %	Pain Catastrophizing
Pain catastrophizing (range: 0-52)	18.86 (14.08)	-
Loneliness (range: 3-9)	6.25 (1.90)	0.34*
Depression (range: 8-40)	17.37 (8.33)	0.63**
Pain intensity (range: 0-10)	5.16 (1.72)	0.31*
Pain interference (range: 0-70)	31.93 (16.45)	0.42**
Pain catastrophizing (T1)	18.18 (14.43)	0.70**
Taking pain medication		
Yes	69.9%	20.90 (13.74)a
No	30.1%	14.12 (13.98)b

Note. Means with different subscripts indicate the groups were significantly different from each other ($p < .05$). *$p < .01$, **$p < .001$.

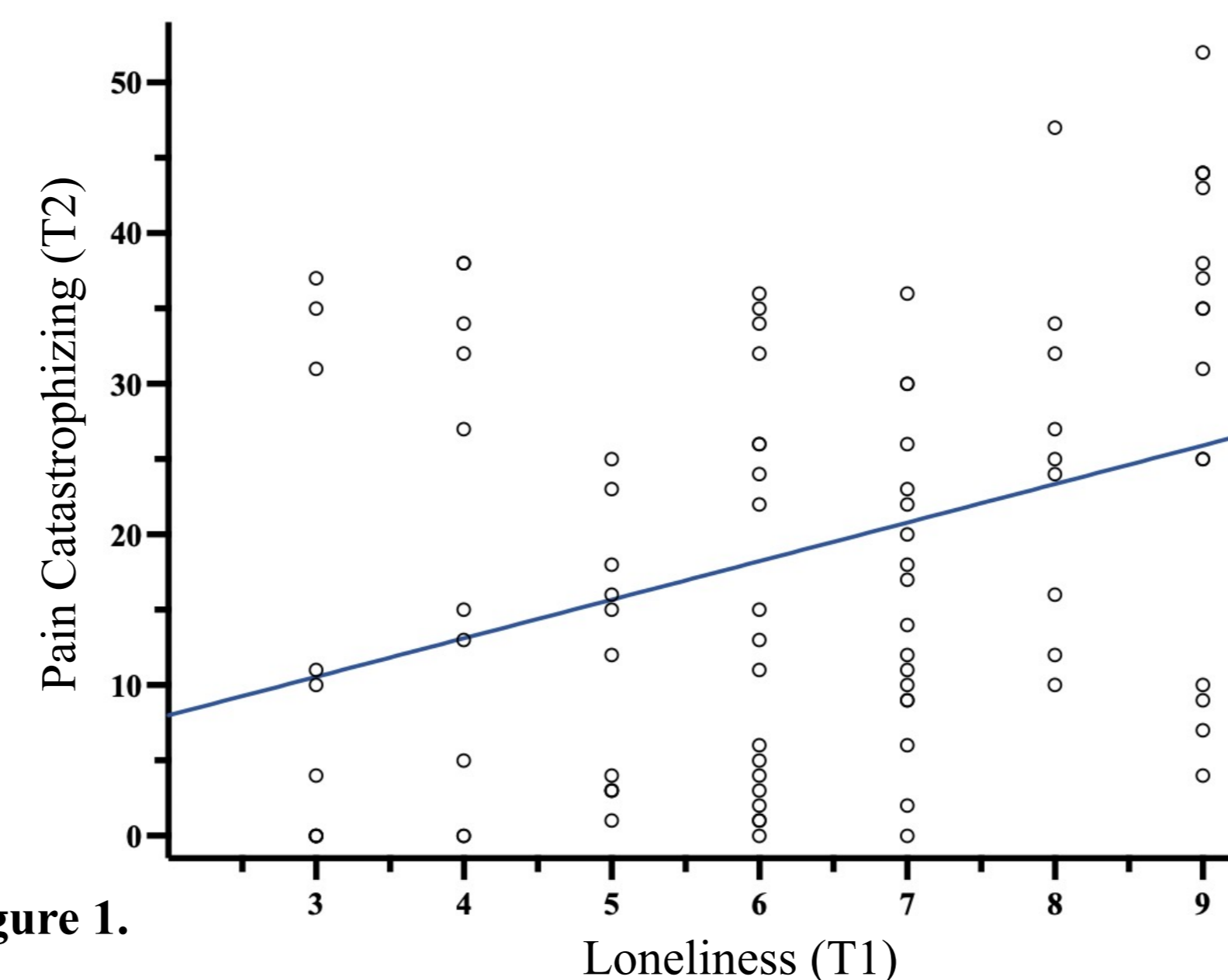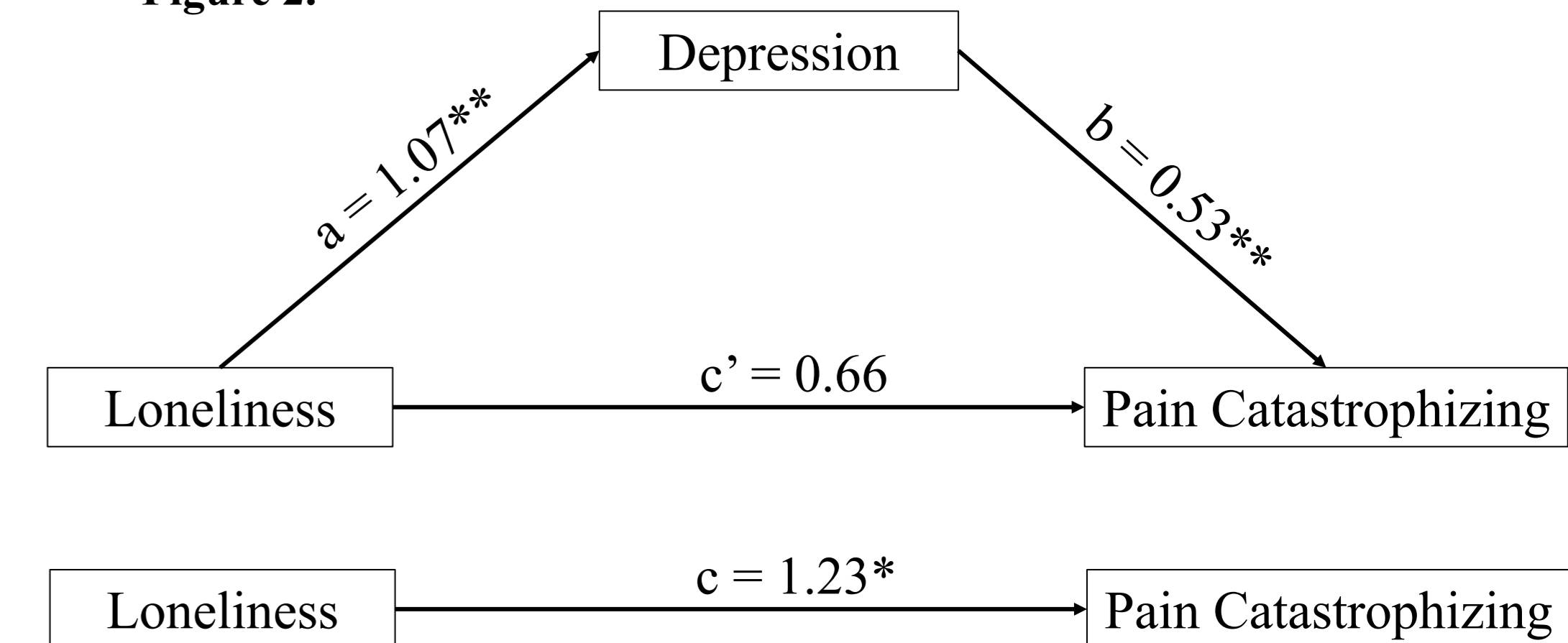**Figure 1.**

Figure 2.

$a = 1.07$**

$b = 0.53$**

$c' = 0.66$

$c = 1.23$*

Note. *$p < .05$, **$p < .01$. Controlling for pain intensity, pain interference, pain medication use, and baseline pain catastrophizing.

- A mediation analysis investigated whether depression (T2) mediated the relation between loneliness (T1) and pain catastrophizing (T2).
- The model was significant, $F_{(6, 85)} = 18.85$, $p < 0.001$, $R^2 = 0.562$.
- There was a significant indirect effect of loneliness on pain catastrophizing through depression (b = 0.57, 95% CI [0.15, 1.31]).
- The direct effect of loneliness on pain catastrophizing was no longer significant when depression was included in the model.

DISCUSSION

- Loneliness and Pain Catastrophizing during the Pandemic
  - The longitudinal design of this study allowed identification of early loneliness as a unique predictor of subsequent pain catastrophizing.
- The Role of Depression
  - Greater severity of depression during the pandemic year partially mediated this relationship.
  - Findings suggest feeling lonely may contribute to depressed mood, leading to more maladaptive cognitions about pain.
- Implications
  - Future studies may benefit from investigating the temporal associations among these variables over the course of empirically-supported treatments that can improve cognitive and affective outcomes.