

The Hidden Cost of Loneliness: Social vs. Solitary Loneliness

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ABSTRACT: While previous research has focused on understanding loneliness as a solitary experience, I compared the experiences of loneliness, a state of distress or discomfort that results from the perception of a gap between one's desires for social connection and actual experiences of it, while being physically alone (solitary loneliness) versus loneliness while being in the presence of others (social loneliness) across four online experiments ($N = 520$). In these experiments, I randomly assigned participants to one of two conditions: imagine doing an activity with a group of people while feeling lonely (social loneliness) or imagine doing an activity alone while feeling lonely (solitary loneliness). My findings revealed that social loneliness led to greater feelings of negativity, discomfort, and disconnection compared to solitary loneliness. I found similar results across all studies, which focused on different contexts. I theorize that this effect occurs because social loneliness involves comparing oneself to others, which amplifies negative emotions. In contrast, solitary loneliness does not inherently have this comparative element. These findings suggest that addressing the problem of loneliness may not be about increasing social contact alone but rather fostering more intentional and meaningful interactions.

KEYWORDS: Behavioral and Social Sciences, Sociology and Social Psychology, Social Interactions, Loneliness.

■ Introduction

Decades of research has found that loneliness is often perceived as a negative experience. Social isolation, A state in which the individual lacks a sense of belonging socially,¹ and loneliness are often associated with increased risks of morbidities and a greater likelihood of developing high blood pressure.² Loneliness is also often linked to suicidal behaviors. Loneliness is commonly seen as a major factor contributing to mental health issues like depression.³ Loneliness is also closely related to emotional regulation strategies that are isolating.⁴ For example, individuals experiencing stronger feelings of loneliness often suppress their emotions and distance themselves from others, which only increases their sense of isolation. Much research has focused on the negative outcomes of loneliness, as chronic loneliness is linked to a decline in positive social interactions, which can lead to poorer physical health and overall well-being.⁵ Despite extensive research on loneliness, much of it has concentrated on solitary loneliness, or being physically alone.

Research has long emphasized the importance of surrounding oneself with others as a remedy for loneliness.⁶ Social connection is widely recognized as a powerful antidote to loneliness and a key contributor to psychological well-being. Social isolation, by contrast, has been identified as a major risk factor, not only for loneliness but also for adverse health outcomes, including increased risk of premature mortality.⁷ Beyond reducing loneliness, social connection also fosters everyday positive experiences, such as a sense of belonging and even enjoyment from brief interactions with strangers.⁸ Interventions aimed at alleviating loneliness often focus on enhancing social interaction, whether through cognitive and behavioral therapies that help individuals stay present and manage distress,⁹ or

through simple gestures like a smile or short conversation that can increase social awareness and reduce feelings of disconnection.¹⁰ Across these approaches, the common thread is clear: engaging with others remains a central and effective strategy for addressing loneliness.

However, loneliness is not always linked to solitude.¹¹ Social loneliness is a form of loneliness experienced even when surrounded by others.¹² Though greater social engagement is often seen as a solution to loneliness, it can sometimes result in social loneliness instead. Social loneliness and emotional isolation, feeling disconnected or unable to share feelings with others, have many negative effects.¹³ For example, research on students transitioning from high school to university shows high levels of emotional and social loneliness, both associated with depression and anxiety.¹⁴ Social loneliness is also a concern for people of older ages, as loneliness affects their overall health in ways when changes occur, such as retirement, declining health, and reduced mobility, disrupting social interactions.¹⁵

While much research has examined both solitary and social forms of loneliness, the relationship between the two and their distinct consequences has received less attention. This study aims to compare the emotional impact of solitary loneliness (feeling lonely while physically alone) and social loneliness (feeling lonely while in the presence of others), and to determine which elicits more intense negative emotions. I predict that social loneliness will lead to stronger negative feelings than solitary loneliness, potentially due to the presence of social comparison. In social settings, being surrounded by others who appear connected may amplify feelings of disconnection, whereas in solitude, the absence of comparison may buffer against the emotional intensity of loneliness.¹⁶ Being around people who seem more socially connected may make someone

feel more disconnected. My interest in this topic began with a general focus on loneliness. In reviewing the literature, I found that most studies explore loneliness in solitude and consistently link it to negative emotional outcomes. However, I noticed a gap in research examining loneliness that arises within social contexts. This observation led to my central research question: Does loneliness feel worse when one is physically alone, or when one is surrounded by others?

■ Methods

I conducted four experiments. The first and second experiments were run on Prolific, an online research platform, on September 1, 2024. The four experiments had IRB and informed consent from all participants.

For Experiment 1, there were 105 participants (mean age = 40.10 years, SD = 13.75; 55.24% female, 40.95% male, and 3.81% other; 67.62% White or European, 14.29% Black or African American, 9.52% Asian or Asian American, 5.71% Hispanic or Latino/a, and 2.86% other). For Experiment 2, there were 106 participants (mean age = 36.06, SD = 12.07; 56.60% female, 38.68% male, and 4.72% other; 55.66% White or European, 17.92% Black or African American, 12.26% Asian or Asian American, 6.60% Hispanic or Latino/a, and 7.56% other).

In both experiments, I developed two scenarios to test my research question: eating lunch and completing a school project. Each experiment had two conditions: a social loneliness condition (feeling lonely while engaging in the activity with others) and a solitary loneliness condition (feeling lonely while engaging in the activity alone). Participants were randomly assigned to one of the two conditions.

For Experiment 1 (lunch scenario), participants in the social loneliness condition were told: "Imagine you are spending time with a group of people. During lunch, you sit with them, but they are engaged in a conversation that you are not part of. You listen to their discussions, but you don't speak, and no one addresses you directly." Participants in the solitary loneliness condition were told, "Imagine you are spending time on your own. During lunch, you sit by yourself at a table, eating quietly with no one else around. You don't speak, and no one addresses you directly."

For Experiment 2 (school project scenario), participants in the social loneliness condition were told: "Imagine you've just moved into a new school. You're assigned to work on a project with a group of classmates. You try to work with them, but you continue to work quietly by yourself, without interacting with anyone or sharing your ideas." Participants in the solitary loneliness condition were told, "Imagine you've just moved into a new school. You're assigned to work on a project alone. You continue to work quietly by yourself, without interacting with anyone or sharing your ideas."

After reading and imagining each scenario, participants responded to several questions. For valence, which refers to the pleasantness or unpleasantness of an emotional stimulus,¹⁷ they answered: "How would you feel in this scenario?" on a scale from 1 (extremely negative) to 7 (extremely positive). For uncomfortable and discomfort, which refers to not

feeling comfortable and pleasant,¹⁸ they answered: "To what extent would you feel uncomfortable/discomfort in this scenario?" from 1 (not at all) to 7 (very much). For disconnection, which refers to the feeling of being separate from someone or something else and not fitting well together or understanding each other,¹⁹ they answered: "To what extent would you feel disconnected from others in this scenario?" from 1 (not at all) to 7 (very much). Participants then completed demographic questions about age, gender, and race.

To expand my study, I conducted Experiments 3 and 4 on November 25, 2024.

For Experiment 3, there were 155 participants (mean age = 39.86 years, SD = 13.28; 54.19% female, 41.94% male, and 3.87% other; 57.42% White or European, 24.52% Black or African American, 5.81% Asian or Asian American, 5.81% Multiracial, 2.58% Hispanic or Latino/a, and 3.87% other). For Experiment 4, there were 154 participants (mean age = 40.79 years, SD = 14.31; 64.29% female, 33.77% male, and 1.95% other; 64.29% White or European, 21.43% Black or African American, 7.79% Asian or Asian American, 2.60% Hispanic or Latino/a).

These experiments used new scenarios: going to the gym and shopping. For Experiment 3 (gym scenario), participants were randomly assigned to one of two conditions. In the social loneliness condition, they were told: "Imagine you are going to the gym with your gym buddies in the morning. You work out together, but you are not talking to them. You hear your gym buddies checking in with each other's progress, but you remain silent and continue working out without talking to anyone." In the solitary loneliness condition, they were told: "Imagine you are going to the gym alone in the morning. You work out alone, and you are not talking to anyone. You hear others checking in with their progress, but you remain silent and continue working out without talking to anyone."

For Experiment 4 (shopping scenario), participants were randomly assigned to one of two conditions. In the social loneliness condition, they were told: "Imagine you are going to a mall with other people. You browse different stores, picking out items you like. You see the other people you came with shopping and talking, but you remain quiet and continue shopping alone." In the solitary loneliness condition, they were told: "Imagine you are going to a mall alone. You browse different stores, picking out items you like. You see other groups of people shopping and talking, but you remain quiet and continue shopping alone."

After reading and imagining each scenario, participants responded to the same questions from Experiments 1 and 2. Participants then completed demographic questions about age, gender, and race.

After collecting the data, I analyzed them using t-tests in R Studio (Version 2024.04.2+764; R Core Team, 2024). I also used Google Sheets to create bar charts displaying the results for all four studies.

■ Results and Discussion

Experiment 1:

Participants in the social loneliness condition reported significantly more negative valence ($M = 3.12$, $SD = 1.20$, $SE = 0.17$) than those in the solitary loneliness condition ($M = 4.78$, $SD = 1.50$, $SE = 0.21$), $p < .001$. Similarly, participants reported significantly more discomfort in the social loneliness condition ($M = 4.15$, $SD = 1.89$, $SE = 0.26$) than in the solitary condition ($M = 2.29$, $SD = 1.69$, $SE = 0.24$), $p < .001$. Participants also reported feeling more uncomfortable in the social loneliness condition ($M = 4.13$, $SD = 2.04$, $SE = 0.28$) than in the solitary condition ($M = 2.43$, $SD = 1.92$, $SE = 0.27$), $p < .001$. Finally, participants felt significantly more disconnected in the social loneliness condition ($M = 5.10$, $SD = 1.59$, $SE = 0.22$) than in the solitary loneliness condition ($M = 4.06$, $SD = 1.93$, $SE = 0.27$), $p = .004$. In summary, Study 1 demonstrates that participants who imagined experiencing social loneliness reported more negative valence, greater discomfort, and stronger feelings of disconnection than those who imagined solitary loneliness (see Figure 1).

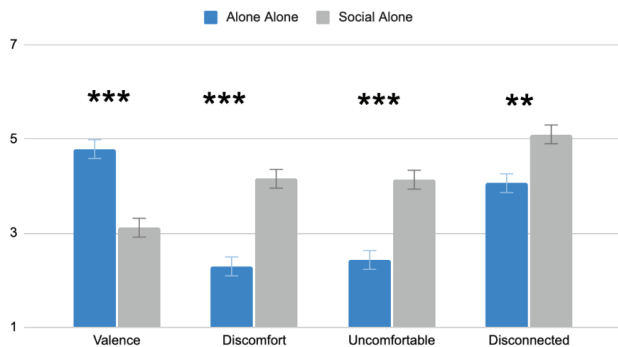


Figure 1: In the lunch scenario, participants in the social loneliness condition reported feeling more negative, uncomfortable, and disconnected than participants in the solitary loneliness condition. The scale ranges from 1, which indicates not at all, to 7, which indicates very much, except for valence, for which 1 indicates extremely negative and 7 indicates extremely positive. (* $p < .05$, ** $p < .01$, *** $p < .001$). Error bars show standard error.

Experiment 2:

Participants in the social loneliness condition reported significantly more negative valence ($M = 3.47$, $SD = 1.31$, $SE = 0.18$) than those in the solitary loneliness condition ($M = 4.08$, $SD = 1.60$, $SE = 0.22$), $p = .036$. Participants also reported greater discomfort in the social loneliness condition ($M = 4.26$, $SD = 1.91$, $SE = 0.26$) than in the solitary condition ($M = 3.31$, $SD = 1.96$, $SE = 0.27$), a statistically significant difference, $p = .013$. Similar results were found for uncomfortability, with higher ratings in the social loneliness condition ($M = 4.30$, $SD = 2.07$, $SE = 0.28$) compared to the solitary condition ($M = 3.30$, $SD = 1.97$, $SE = 0.27$), $p = .013$. Finally, participants felt more disconnected in the social loneliness condition ($M = 5.36$, $SD = 1.52$, $SE = 0.21$) than in the solitary loneliness condition ($M = 4.35$, $SD = 1.78$, $SE = 0.25$), $p = .002$. In summary, Study 2 shows that participants in the social loneliness condition had more negative valence, greater discomfort, and increased feelings of disconnection compared to those in the solitary loneliness condition (see Figure 2).

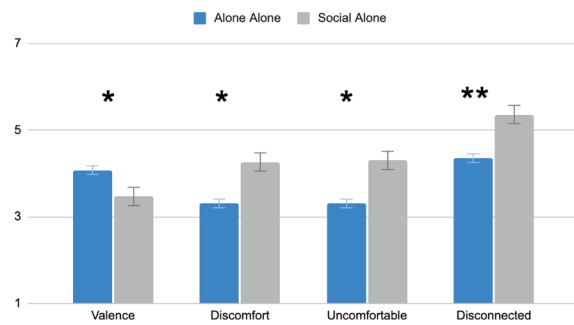


Figure 2: In the school project scenario, participants in the social loneliness condition reported feeling more negative, uncomfortable, and disconnected than participants in the solitary loneliness condition. The scale ranges from 1, which indicates not at all, to 7, which indicates very much, except for valence, for which 1 indicates extremely negative and 7 indicates extremely positive. (* $p < .05$, ** $p < .01$, *** $p < .001$). Error bars show standard error.

Experiment 3:

Participants in the social loneliness condition reported significantly more negative valence ($M = 2.76$, $SD = 0.81$, $SE = 0.09$) than those in the solitary loneliness condition ($M = 3.44$, $SD = 0.95$, $SE = 0.11$), $p < .001$. Participants also reported greater discomfort in the social loneliness condition ($M = 3.25$, $SD = 1.61$, $SE = 0.18$) than in the solitary condition ($M = 2.37$, $SD = 1.49$, $SE = 0.17$), a statistically significant difference, $p < .001$. Similarly, participants reported feeling more uncomfortable in the social loneliness condition ($M = 3.33$, $SD = 1.67$, $SE = 0.19$) than in the solitary condition ($M = 2.46$, $SD = 1.63$, $SE = 0.19$), $p = 0.001$. Finally, participants reported significantly more disconnection in the social loneliness condition ($M = 4.40$, $SD = 1.75$, $SE = 0.20$) compared to the solitary condition ($M = 3.62$, $SD = 2.04$, $SE = 0.23$), $p = 0.012$. In summary, Study 3 demonstrates that participants in the social loneliness condition experienced more negative valence, as well as greater discomfort and disconnection, compared to those in the solitary loneliness condition (see Figure 3).

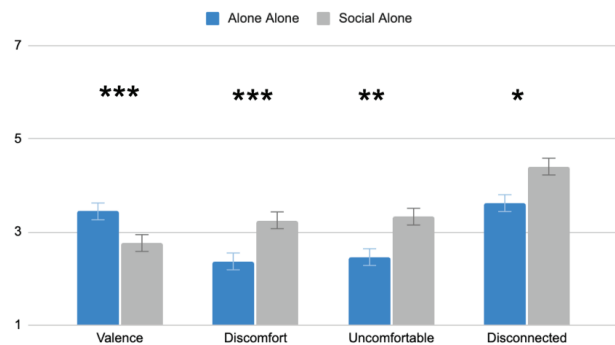


Figure 3: In the gym scenario, participants in the social loneliness condition reported feeling more negative, uncomfortable, and disconnected than participants in the solitary loneliness condition. The scale ranges from 1, which indicates not at all, to 7, which indicates very much, except for valence, for which 1 indicates extremely negative and 7 indicates extremely positive. (* $p < .05$, ** $p < .01$, *** $p < .001$). Error bars show standard error.

Experiment 4

Participants in the social loneliness condition reported significantly more negative valence ($M = 2.97$, $SD = 0.95$, $SE = 0.11$) than those in the solitary loneliness condition ($M = 3.42$, $SD = 0.88$, $SE = 0.10$), $p = 0.003$. Participants also reported

greater discomfort in the social loneliness condition ($M = 3.16$, $SD = 1.50$, $SE = 0.17$) than in the solitary condition ($M = 2.67$, $SD = 1.68$, $SE = 0.19$); however, this difference was not statistically significant, $p = 0.062$. For discomfort, participants again reported higher ratings in the social loneliness condition ($M = 3.23$, $SD = 1.60$, $SE = 0.18$) than in the solitary condition ($M = 2.59$, $SD = 1.63$, $SE = 0.19$), and this difference was statistically significant, $p = 0.017$. Finally, participants reported feeling more disconnected in the social loneliness condition ($M = 4.00$, $SD = 1.80$, $SE = 0.21$) than in the solitary loneliness condition ($M = 3.82$, $SD = 1.91$, $SE = 0.22$), but this difference was not statistically significant, $p = 0.543$. In summary, Study 4 demonstrates that participants in the social loneliness condition experienced more negative valence and greater discomfort, though differences in discomfort and disconnection did not reach statistical significance (see Figure 4).

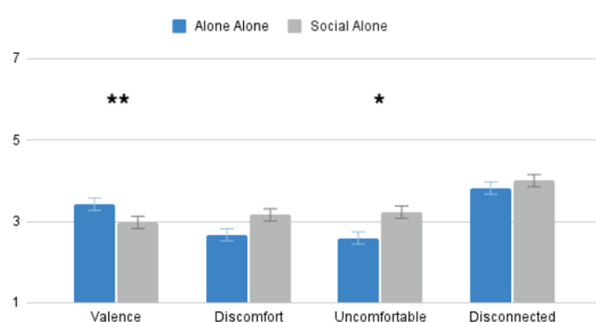


Figure 4: In the shopping scenario, participants in the social loneliness condition reported feeling more negative and uncomfortable than participants in the solitary loneliness condition. The scale ranges from 1, which indicates not at all, to 7, which indicates very much, except for valence, for which 1 indicates extremely negative and 7 indicates extremely positive. (* $p < .05$, ** $p < .01$, *** $p < .001$). Error bars show standard error.

Conclusion

In this research, I explored how people experience two types of loneliness: solitary loneliness (feeling alone when by yourself) and social loneliness (feeling alone even when others are around). Although some results weren't statistically significant, there was a consistent trend across four everyday scenarios: participants reported more discomfort, negative valence, and a stronger sense of disconnection in the social loneliness condition than in the solitary loneliness condition. I theorize that this is because social loneliness involves comparing yourself to others, which may make people feel worse. Further, while this pattern held across all four studies, the strength of the effect varied depending on the scenario. For instance, the emotional valence difference was stronger in some situations (like in Study 1 and Study 3), but smaller in others (like Study 4), possibly because different settings (e.g., eating lunch, going to the gym) bring out different feelings of connection or isolation, or certain activities make social comparison more noticeable. A possible reason is that Study 4's setting involves shopping, which may not evoke immediate or obvious feelings of loneliness, as it is an action often done alone.

Several limitations of my research offer possibilities for future research. To begin, I used a relatively small sample size,

with over 100 participants for each study. The mean ages for the study were between 36 and 40 years old, so the results may not apply as well to younger adults (e.g., 18-30) or older adults (e.g., above 50). Future studies might target different age groups to investigate if people respond differently based on life stage. Further, a key source of variability in the data is individual differences among participants. Participants with different familial, social, or economic backgrounds or varying levels of familiarity with the scenarios may perceive and experience loneliness differently. Future research might consider examining whether and how these differences influence the results.

One main limitation of this research is the hypothetical nature of the scenarios. Rather than experiencing these scenarios, participants were asked to imagine the scenarios in their minds, which introduces potential recall bias.²⁰ This aspect contributes to the challenge of knowing if their self-reported responses would reflect how they would feel in real life. Additionally, because participants self-reported their feelings, their answers could have been influenced by their mood, interpretation of the questions, and/or prior experiences with loneliness. To build on this work, future research could use real-life experiments in which participants engage in these scenarios rather than imagining them. Researchers could also study the long-term effects of social and solitary loneliness, not just how people feel in the moment.

To conclude, loneliness is a widespread experience that is often linked to negative outcomes.²¹ Research suggests that engaging with strangers provides greater psychological benefits than solitude, yet people tend to prefer being alone, mistakenly believing it leads to greater happiness.^{8,22} Studies show that even brief conversations with strangers can enhance well-being,^{8,23} and interactions with weak ties may be more beneficial for emotional health than those with close connections sometimes.²⁴ However, many hesitate to initiate conversations due to fear or discomfort. Loneliness can occur both in solitude and within social settings, with social loneliness—feeling disconnected despite being with others—often evoking stronger negative emotions. My research compared solitary loneliness (feeling lonely when alone) and social loneliness (feeling lonely despite social presence). I found that social loneliness led to greater discomfort and disconnection than solitary loneliness. Although people often assume that being around others prevents loneliness, this research shows that meaningful connection, not just the presence of others, is what matters. Social loneliness can feel even worse than being alone, and understanding this difference may help us better support those who are struggling with connection. A limitation of this study is that the vignette conditions may not have fully separated social loneliness and solitary loneliness. Although the social loneliness condition represents the feeling of loneliness in the presence of others, it may also imply social exclusion if participants imagined being around those they are familiar with. Similarly, the solitary loneliness condition may have caused the feeling of being alone rather than loneliness, as actions, such as studying and shopping, often occur alone without feelings of loneliness. Future research should conduct experiments that explicitly state participants felt an unmet desire for social connection,

and can conduct experiments could involve two conditions for “social loneliness,” where one is with friends, and the other is with strangers, to examine if there will be a possible difference. Future research can also combine the measures of interest in discomfort and uncomfortable, as they correlate strongly. Future research can focus on the impact of social comparison on loneliness to provide a better understanding of the connection between the two by including self-report measures of social comparison and testing whether comparison mediates or intensifies loneliness.

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