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Can a Self-Compassion Writing Intervention Impact Feelings of Loneliness?

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Abstract

Loneliness is an increasingly widespread concern for many individuals, especially college students and young adults, and has been exacerbated by the COVID-19 pandemic. Loneliness can negatively impact health and well-being; however, many interventions are not successful in reducing loneliness. One possible intervention may be a resilience practice. Namely, self-compassion may reduce feelings of loneliness because it provides a way to connect with oneself and support well-being. This study aimed to examine the impact of a self-compassion intervention on feelings of loneliness and well-being in college students. It utilized a self-compassion writing intervention compared to a control self-affirmation writing intervention and examined both state or momentary feelings, as well as general or long-term feelings. The interventions did not affect general loneliness, but participants in both conditions experienced an increase in general well-being. Further, both conditions experienced decreased state loneliness, increased state self-compassion, and increased state well-being. The self-compassion intervention had a distinct impact on state well-being. These results support past research that long-term loneliness is difficult to alter. They also provide a new way to impact short-term feelings of loneliness in a cost- and time-effective manner.

Can a Self-Compassion Writing Intervention Impact Feelings of Loneliness?

This study aims to examine the impact of a self-compassion writing intervention on feelings of loneliness. The current study utilizes an online, individual intervention in college students. To provide background for this project, I will first review evidence that disasters such as the COVID-19 pandemic adversely affect mental health. These disasters also have a distinct impact on feelings of loneliness, which has adverse effects on well-being. College-aged and young adults are especially at risk for feelings of loneliness, suggesting that interventions are essential for this age group. After summarizing research about current interventions to reduce feelings of general loneliness, I will examine self-compassion as a potential intervention. Self-compassion and loneliness have been linked indirectly through depression and anxiety such that lower rates of these mental illnesses are associated with decreased loneliness and increased self-compassion. Additionally, a greater sense of community occurs with higher self-compassion and lower levels of loneliness, suggesting that self-compassion may reduce loneliness. Because of these relationships, self-compassion may be an especially favorable possibility for reducing feelings of loneliness.

Impact of Natural Disasters on Mental Health

Natural disasters and crises affect millions of people worldwide every year. These catastrophes can take an exceptional toll on the mental health of those who are impacted and produce long-lasting effects that can be present for years

after the event (Bokszczanin, 2008). Specifically, natural disasters can increase psychological, emotional, and social problems such as inducing feelings of social isolation and withdrawal from relationships (Kaniasty, 2012). Kaniasty (2012) found that of 285 adult participants who experienced a severe flood, 43% reported experiencing moderate trauma, and 19% reported experiencing high trauma. Similar results have been reported across events such as Hurricane Katrina, the Gulf oil spill, and the Great Recession (Bokszczanin, 2008; Kaniasty, 2012; Modrek et al., 2015; Osofsky et al., 2015; Teasdale et al., 2013). Additionally, Bokszczanin (2008) found that adolescents, in particular, had increased intrusive thoughts and negative mood, a sense of isolation, and a feeling of a lack of acceptance in the months following a natural disaster. After experiencing a severe flood, PTSD and depression symptoms were elevated in adolescents who suffered more significant losses in the flood than their peers (Bokszczanin, 2008). Similarly, Teasdale et al. (2013) found that adolescents had increased feelings of social isolation after Hurricane Katrina. Natural disasters have a clear and documented negative effect on nearly all people's mental health, especially adolescents.

Impact of the COVID-19 Pandemic on Mental Health

Natural disasters and their impact can serve as a parallel to the current COVID-19 pandemic; both situations are devastating and unexpected, and they threaten lives and entire communities. COVID-19 is currently deteriorating mental health and generating an increase in feelings of distress, fear, anxiety,

depression, and diagnosed disorders around the globe (Mucci et al., 2020; Porcelli, 2020). It is highly likely that the COVID-19 pandemic will have long-term effects on mental and physical health (Mucci et al., 2020).

The measures taken to protect against COVID-19 infection exact an exceptionally high toll in terms of loneliness and social isolation. This is happening not only through physical and social distancing but through a lack of interpersonal relations (Beam & Kim, 2020; Porcelli, 2020). For example, small interactions with strangers at the coffee shop or walking down the street are now brief and rare. When they do happen, necessary face coverings further hinder these interactions. Feelings of severe loneliness were reported by 20-48% of adolescents and young adults before the COVID-19 pandemic, and these numbers have only increased since its onset (Beam & Kim, 2020). Prior to the pandemic, the organization Active Minds reported that 62.8% of college students reported feeling very lonely at some point within a year (Active Minds, 2018). In September 2020, 77.8% of college students reported feeling loneliness or isolation due to the COVID-19 pandemic (Active Minds, 2020). Loneliness is a significant problem during COVID-19 for all adults, but especially for young adults (Beam & Kim, 2020).

Providing social support, coping mechanisms, and mental health services is necessary after a natural disaster to prevent extreme adverse effects on mental health (Bokszczanin, 2008; Kaniasty, 2012; Modrek et al., 2015; Osofsky et al., 2015; Teasdale et al., 2013). Immediate mental health interventions are most

effective in promoting resilience and recovery, and they can provide the most significant support across the affected group of people. As loneliness is a substantial issue for adolescents and young adults following natural disasters, it is a clear choice to target in an intervention. A practical and accessible intervention is needed to address loneliness and prevent further damage to overall mental health and well-being.

Loneliness

Loneliness is a subjective state of feeling alone and dissatisfaction that often results from feelings of inadequate meaningful connections and social relationships (Fried et al., 2020; Williams & Braun, 2019). Risk factors for developing loneliness include low self-esteem, low satisfaction with one's life, anxiety, and depression (Akin, 2010). Loneliness is especially prevalent among older adults and young adults, as well as among lower-income groups and those with less education (Akin, 2010). In the United States, 62.8% of college students reported feeling very lonely at some point within a year (ACHA, 2018). In recent years, loneliness rates have rapidly increased in young adults and are even further exacerbated by the current COVID-19 pandemic, causing national and even worldwide concern (ACHA, 2018; Beam & Kim, 2020). It is also important to note that loneliness is distinct from solitude. While loneliness is a state of feeling alone and is typically a negative feeling, solitude, or time spent alone, can be restorative and have positive effects on overall well-being. Solitude is often

experienced purposefully by individuals as a way to connect with oneself more deeply, whereas loneliness frequently arises inadvertently and is undesired.

Loneliness has associations with health behaviors such as poor sleep and increased stress and diagnosable diseases and disorders such as depression and anxiety; loneliness can serve as a risk factor for developing both disorders (Ebsesutani et al., 2015; Fried et al., 2020). Additionally, anxiety and depression are psychological variables associated with loneliness (Akin, 2010). There is considerable research into these relationships and how they can negatively impact mental health and well-being. Loneliness can also have physical health effects, including increased blood pressure and cholesterol. In situations of long-term loneliness, loneliness can contribute to cardiovascular disease, suppress the immune system, and assist in premature mortality (Fried et al., 2020; Williams & Braun, 2019). Additionally, loneliness can significantly impact society through increased healthcare costs, diminished productivity, and reduced social cohesion and sense of community (Williams & Braun, 2019). Loneliness is not only urgent and getting worse with time, but it demonstrates severe health risks and economic loss (Holt-Lunstad et al., 2017). Even though there are few known effective strategies, these combined health effects clearly show that research into interventions is needed to prevent and treat feelings of loneliness.

Current Loneliness Interventions

Because of the complexities of loneliness and its associated effects, current interventions can be ineffective at reducing feelings of loneliness. Many

current interventions do not lower loneliness levels but simply prevent an increase in loneliness, proving useful but insufficient for tackling this significant problem (Deckx et al., 2018). There are few known effective strategies, but these can include psychosocial interventions, wider community groups, peer mentoring, and general wellness techniques (Bessaha et al., 2019; Holt-Lunstad et al., 2017; Mann et al., 2017). Most approaches have been tried with middle-aged adults or with senior citizens.

One popular approach to addressing a variety of mental health concerns, including loneliness, is psychosocial interventions. Psychosocial interventions consist mainly of psychotherapies, and they often incorporate community-based treatment and peer support. These can be done both online and face-to-face and can be done in a group setting or alone with a therapist. Psychosocial interventions have effectively reduced feelings of loneliness (Bessaha et al., 2019; Holt-Lunstad et al., 2017). Still, these interventions are often short-term solutions, and reductions in loneliness are not sustained over long periods (Bessaha et al., 2019). Additionally, these interventions can be costly, time-consuming, and inaccessible for some people.

Similarly, wider community groups are a type of psychosocial intervention that aims to appeal to the entire community and reduce stigma (Mann et al., 2017). These groups can also boost the confidence of the person experiencing loneliness because they feel accepted and appreciated by other community members within this group and because these groups can facilitate social

connection. Still, these interventions have not been shown to have a lasting impact on loneliness or related health issues (Mann et al., 2017). Another specific example of psychosocial intervention that has demonstrated the potential for reducing feelings of loneliness is peer support. Multiple peer support programs have found immediate effects on loneliness, but these reductions are not sustained over time (Bessaha et al., 2019; Mann et al., 2017). Further, a handful of studies utilizing peer-mentoring-based interventions did not find a significant impact on loneliness (Bessaha et al., 2019). In general, psychosocial therapies show potential for short-term reductions of feelings of loneliness. Still, their long-term impact has been limited in that reductions are not sustained or are not significant.

Another option for loneliness interventions is general wellness techniques. General wellness interventions aim to improve overall well-being through behavior change, physical activity, nutrition, mindfulness, or other health-related behavior (Bessaha et al., 2019; Holt-Lunstad et al., 2017). Wellness techniques have demonstrated reductions in loneliness, but these effects are not true across all interventions (Bessaha et al., 2019). Still, these techniques have been identified as having considerable potential for impacting loneliness and need more research (Mann et al., 2017).

Generally, current loneliness interventions can increase the number of social contacts, increase a sense of belonging, and even mediate stress responses (Bessaha et al., 2019). Even so, many of these interventions are not widely

available, thoroughly studied, or entirely effective, stressing the need for further research into loneliness interventions that are accessible and efficient.

Resilience-based interventions show considerable potential to reduce loneliness. Resilience is the ability to cope and recover from difficulties quickly and is pivotal for dealing with stress and uncertain situations (Vinkers et al., 2020). Resilience can be cultivated in many ways and through multiple types of training; training can vary but often includes mindfulness, cognitive skills, gratitude practices, self-compassion skills, and more (Joyce et al., 2017). For feelings of loneliness, in particular, one promising method for increasing and promoting resilience is self-compassion.

Self-Compassion

Self-compassion is treating oneself gently and with kindness and extending care to oneself in response to perceived failures, hardships, or difficulties (Neff, 2003). Neff (2003) identifies three components of self-compassion: self-kindness, common humanity, and mindfulness.

Self-kindness is the ability to be understanding and forgiving towards oneself.

Common humanity refers to realizing that all humans fail and encounter hardship as a part of the human experience and that all people are deserving of compassion, oneself included. The third piece is mindfulness, which is being mindfully aware of your feelings without expressing judgment about them (Neff, 2003).

Additionally, there is a difference between trait and state self-compassion. Trait or general self-compassion refers to the relatively stable levels of self-compassion

one experiences throughout one's life, while state self-compassion is momentary feelings of self-compassion. State self-compassion can be induced through brief interventions or similar self-compassion exercises.

Self-compassion skills are a simple and effective form of self-care that can develop better well-being overall (Nelson et al., 2018). Self-compassion is strongly associated with higher life satisfaction, social connection, positive affect, and happiness and lower levels of anxiety, depression, and self-criticism (Neff et al., 2007; Nelson et al., 2018). Self-compassion is also connected to healthy activities such as good sleep habits, adequate exercise, effective stress management, and increased learning and motivation (Long & Neff, 2018; Nelson et al., 2018). Self-compassion even encourages successful coping with one's current environment, which may be impactful in times of hardship, such as natural disasters or COVID-19 (Neff et al., 2007). Self-compassion has clear associations with overall better well-being.

Self-compassion can enhance the perception of social connections, suggesting that it may be an impactful intervention for loneliness (Harwood & Kocovski, 2017). Long and Neff (2018) examined levels of self-compassion in students and found that higher self-compassion was associated with increased classroom participation. In turn, this increased participation was associated with higher feelings of connection with peers and teachers (Long & Neff, 2018). Specifically, those with higher self-compassion felt more comfortable being

vulnerable when participating in class activities, suggesting that they may be more willing to be vulnerable in social environments (Long & Neff, 2018).

Another study by Neff et al. (2007) conducted in a therapy setting sought to induce self-compassion about a situation about which the participant was self-critical. They found that participants who experienced an increase in self-compassion also experienced increased perceived social connectedness, defined as feeling close and connected to others (Neff et al., 2007). These results held true when scores were controlled for changes in overall anxiety, suggesting that induction of self-compassion alone increases feelings of connection that could consequently decrease feelings of loneliness.

Harwood and Kocovski (2017) used a self-compassion writing intervention where participants wrote about a negative event and responded to themselves with self-compassion. This was compared to a control condition of writing about a negative event without a self-compassionate response. The self-compassion writing intervention reduced anxiety for those with high social anxiety; it was not successful for those with low social anxiety (Harwood & Kocovski, 2017). This study suggests that a self-compassion writing intervention may inhibit feelings of social anxiety and induce the perception of increased social connection. Because of the link between self-compassion and social connectedness, self-compassion may also provide relief for loneliness.

Self-Compassion Interventions

Self-compassion can be induced through many techniques, including meditations, self-talk, body scans, and writing or journaling. Self-compassion writing interventions are especially useful in promoting well-being and positive affect and reducing negative emotions both immediately after the intervention and over time (Hu et al., 2018; Leary et al., 2017; Pachankis et al., 2020; Przewdziecki & Sherman, 2016; Wong & Mak, 2016). When compared to other interventions, writing interventions can be impactful because they are accessible and available to anyone at any time (Siegel & Kocovski, 2020; Travagin et al., 2015). Relative to other self-compassion interventions, self-compassion writing promotes faster disengagement from negative emotions, less judgment of oneself in social situations, and a greater appreciation of oneself (Seekis et al., 2017; Siegel & Kocovski, 2020; Yip & Tong, 2020). Overall, the literature supports the use of self-compassion writing interventions over other intervention methods.

Loneliness and Self-Compassion

Past research has rarely connected self-compassion and loneliness. These two concepts have been linked indirectly, for example, through their association with a sense of community. A sense of community, defined as feeling belonging to a larger society, is negatively associated with loneliness (Akin & Akin, 2015). A sense of community also has a significant relationship with self-compassion (Akin & Akin, 2015). This relationship suggests that since a sense of community has negative associations with both loneliness and self-compassion, self-compassion could directly impact feelings of loneliness; being

self-compassionate might lead to an increased sense of belonging, decreasing feelings of loneliness. Prosocial behavior may also show the link between self-compassion and loneliness. Prosocial behavior can include concern and empathy for others and is positively associated with self-compassion (Yang et al., 2019). Prosocial behavior can influence social connection, helping to decrease feelings of loneliness (Yang et al., 2019). This suggests that because prosocial behavior has relationships with both social connection and self-compassion, self-compassion could directly affect feelings of loneliness. Specifically, being self-compassionate might lead to increased prosocial behavior, which could decrease feelings of loneliness. While indirect, these links indicate a potential new connection between self-compassion and loneliness.

Anxiety and depression have been connected with self-compassion and loneliness, suggesting another indirect link between the two concepts. Loneliness is significantly associated with higher rates of anxiety and depression, while self-compassion is correlated with lower rates of anxiety and depression (Ebsesutani et al., 2015). Specifically, self-compassion interventions reduce the levels and symptoms of both anxiety and depression (Ko et al., 2018; Shapira & Mongrain, 2010). These interventions can also decrease depression levels by encouraging positive thinking and coping mechanisms (Shapira & Mongrain, 2010). When combined, these studies further support an indirect link between loneliness and self-compassion.

There is one study that discusses the direct intersection of self-compassion and loneliness. Akin (2010) analyzed university students' responses on self-compassion and loneliness measures and found that loneliness was negatively correlated with self-compassion; higher rates of trait self-compassion were associated with lower rates of feelings of loneliness (Akin, 2010). All three components of self-compassion supported this association. This study had limitations, namely that this study was designed to build a model for this relationship and was solely correlational. Further research on this topic is necessary.

Limitations of Past Research

One limitation of past research on loneliness interventions is that the vast majority of studies utilize group interventions for loneliness (Bessaha et al., 2019). Group interventions can be costly, time-intensive, and hard to access, warranting further research on interventions that people can undertake independently. Also, many interventions, such as self-compassion interventions, are only conducted on one testing day. These studies often show limited success, and benefits are not sustained, so there is a need to study interventions that last over time. Additionally, loneliness interventions are often an extension of general wellness interventions; while these are somewhat impactful, they often do not fully target the intricacies of loneliness. Lastly, past research is limited by a small number of studies that examine online interventions for loneliness. Online interventions can be as effective as face-to-face interventions and are often more

attainable, yet they do not have as large a body of research as in-person interventions (Holmes & Foster, 2012; Suh et al., 2019). The present study sought to address these limitations.

The Present Study

Understanding the relationship between self-compassion and loneliness is limited by the small amount of research that has been done. Even so, the research that connects these concepts suggests compelling associations between self-compassion and loneliness. The potential for a substantial connection inspired the current study, which examined how a self-compassion intervention impacted feelings of loneliness.

The current study aims to fill gaps in previous literature by offering an online, individual intervention that is easily accessible and can meet the needs of a wider group of people. Additionally, self-compassion writing has been studied extensively as a resilience tool and has a robust empirical foundation (Hu et al., 2018; Leary et al., 2007; Przewdziecki & Sherman, 2016; Seekis et al., 2017; Siegel & Kocovski, 2020). This study will extend our previous knowledge about self-compassion and loneliness and offer an intervention that can be widely implemented. During a challenging time such as COVID-19 or a natural disaster, this study will also provide an opportunity for individuals to potentially increase their resilience and social connection.

As a control, self-affirmation writing was used. Self-affirmation is defined as a process where one engages in positive reflection on a valued self-domain,

including personal traits and principles (Niles et al., 2016). Self-affirmation positively affects well-being, but its connections to loneliness are less well-established (Lannin et al., 2019; Niles et al., 2016). When engaging in self-affirmation writing, participants report more positive feelings and less negative emotions (Crocker et al., 2008). Specifically, self-affirmation has demonstrated associations with increased feelings of love, happiness, self-worth, and pride (Crocker et al., 2008). Self-affirmation has also been associated with fewer anxiety symptoms and reduced stress (Niles et al., 2016).

The active control of a self-affirmation writing intervention was chosen instead of an inactive control for multiple reasons. There were concerns about the ability to recruit enough participants for three conditions: intervention, active control, and inactive control. Further, self-affirmation was chosen over the passive control to provide a more stringent test of my hypothesis. If an inactive control was used, any difference seen between the control and intervention groups could be due to a generic effect of a positive psychological intervention. Thus in the present study, any differences between the groups would be attributable to the unique properties of self-compassion. By utilizing the self-affirmation control, both groups had an active intervention, making them more evenly matched.

This study examined current and recent college students' levels of loneliness, self-compassion, and overall well-being before and after three self-compassion writing interventions online over five days. I hypothesized that self-compassion and self-affirmation interventions would enhance participants'

well-being but that only self-compassion would reduce feelings of loneliness. Initial research into the relationship between self-compassion and loneliness and their indirect links supports this hypothesis. Because self-compassion writing has also been effective in improving overall well-being and specifically impacting social connection, this intervention will likely impact feelings of loneliness.

Method

Participants

One hundred twenty-two participants completed the first day of my study, and 84 participants completed all components of my study. There were 61 participants in the self-compassion group at the beginning, and 41 completed everything. There were 61 participants in the self-affirmation group to start, and 43 who completed all components. All participants were current college students or had been college students within the last calendar year. Participants were recruited by responding to an electronic survey circulated through email, text, social media, and campus communications, and participation was entirely optional.

Participants were screened on both general self-compassion and general loneliness on the first day of the study. I planned to exclude those within the highest ten percent of the general self-compassion scale to avoid ceiling effects, but no participants met this criterion. Those within the lowest ten percent of the general loneliness scale were excluded from the study to avoid floor effects ($n = 2$). One participant emailed and asked to stop their participation in the study, and

the data from four were removed due to technical errors. As compensation, participants had five opportunities to be entered into a raffle for four \$25 gift cards to Amazon. One chance was offered at the end of each testing day for a total of three opportunities throughout the intervention. For completion of the entire intervention and the follow-up survey one week later, participants had the chance to receive two additional entries, totaling five chances over the whole intervention.

The age range of participants was 18 to 26 years old ($M = 20.06$, $SD = 1.40$). Ninety-one (75.4%) of the 122 participants identified as female, 21 (17.2%) as male, 6 (4.9%) as transgender, 11 (9.0%) as non-binary, and 2 (1.6%) as other. This sample included participants who identified as American Indian or Alaskan Native ($n = 1$, 0.8%), Asian ($n = 26$, 21.3%), Black or African American ($n = 12$, 9.8%), Latinx ($n = 19$, 15.6%), Native Hawaiian or other Pacific Islander ($n = 1$, 0.8%), White ($n = 78$, 63.9%), and other ($n = 6$, 4.9%). For gender identity and racial identity, participants were allowed to select as many categories as applied.

Design

The present study used a mixed model design to investigate the relationship between loneliness and self-compassion. The intervention was a between-subject variable, while the testing period was a within-subject variable. The independent variable was either the self-compassion writing intervention or the control self-affirmation writing intervention; participants were randomly assigned to these conditions. The dependent variables were loneliness,

self-compassion, and psychological well-being. Participants were tested on these dependent measures before the intervention, after each testing day, and at the follow-up one week after completing the intervention.

The writing prompts were modeled from past research (Lannin et al., 2018; Leary et al., 2007; Neff et al., 2007; Niles et al., 2018). Each self-compassion intervention invited the participant to describe a negative event they have experienced and to respond to themselves with self-compassion. Here is a sample prompt from day one:

Think about a negative event that you have experienced in the last year that made you feel bad about yourself, like something that involved failure, humiliation, or rejection. Write a sentence or two describing the event, providing details about what led up to the event, who was present, what happened, and how you felt and behaved at the time. Now, write a paragraph or two expressing understanding, kindness, and concern to yourself in the same way that you might express concern to a friend who has undergone a similar experience.

The self-affirmation group was asked to describe events and attributes that made them feel both proud and negative, depending on the day, and to respond to themselves positively and affirm their values. Here is a sample prompt from day one:

Think about a life event that you have experienced in the last year that made you feel proud of yourself. Write a sentence or two describing the

event, providing details about what led up to the event, who was present, what happened, and how you felt and behaved at the time. Now, write a paragraph or two about this life event and how it made you feel proud.

Measures

Demographics

Participants completed a demographic questionnaire about their age, year in school, gender identity, race, and subjective social status (see Appendix A). Year in school was a required question for all participants to ensure current or recent college enrollment. All other demographic questions included an option to indicate a preference not to answer.

Loneliness

Loneliness was defined in this study as a subjective state of feeling alone due to inadequate meaningful connections and relationships. General loneliness refers to the tendency to feel persisting, long-lasting, and enduring loneliness, while state loneliness captures momentary feelings of loneliness. General loneliness was measured prior to the intervention to avoid floor effects and at the follow-up to measure potential changes in general loneliness. State loneliness was measured before the intervention, at the end of each testing day, and at follow-up testing.

General loneliness was measured using the Revised UCLA Loneliness Scale (Russel et al., 1980; see Appendix B). The Revised UCLA Loneliness Scale is a self-report questionnaire consisting of 20 items that measure satisfaction and

dissatisfaction with social relationships. Sample items include: “there are people I can turn to,” “I lack companionship,” and “my interests and ideas are not shared by those around me.” Items 1, 4, 5, 6, 9, 10, 15, 16, 19, and 20 are reverse-scored. When scoring, *never* counts as one point, *rarely* counts as two points, *sometimes* counts as three points, and *often* counts as four points. The mean of these scores is taken, and greater scores indicate higher levels of loneliness.

The Revised UCLA Loneliness Scale demonstrates high internal consistency (Cronbach’s alpha = .94). It also shows concurrent and discriminant validity, and it correlates with depression and anxiety measures (Russel et al., 1980). In this study, the scale had excellent internal reliability (Cronbach’s alpha = .929).

State loneliness was measured with one item: “I am feeling lonely right now” (Arpin & Mohr, 2019; see Appendix C). Participants were instructed to think about how they were feeling at that very moment. The scale ranges from 1 (*strongly disagree*) to 5 (*strongly agree*), and greater scores indicate higher levels of loneliness. The one-item scale was used in this study as opposed to a more lengthy questionnaire because it is one of the only scales available for state loneliness. It appears to be valid and reliable, and it is supported by past research.

Self-Compassion

Self-compassion in this study is defined as treating oneself with kindness in the face of perceived hardships. Trait or general self-compassion refers to the relatively stable levels of self-compassion one experiences over a long period of

time, whereas state self-compassion refers to momentary feelings of self-compassion. General self-compassion was measured prior to the intervention to avoid ceiling effects. State self-compassion was measured before the intervention, at the end of each testing day, and at follow-up testing.

General self-compassion was measured using the Self-Compassion Scale (SCS; Neff, 2003; see Appendix D). The SCS is a self-report questionnaire with 26 items that measure the three main aspects of self-compassion: self-kindness, common humanity, and mindfulness. There are ten items relating to self-kindness and eight items each for common humanity and mindfulness. Participants were instructed to indicate how they typically act toward themselves in difficult times. The SCS is on a scale ranging from one (*almost never*) to five (*almost always*). Sample items include “when I’m going through a very hard time, I give myself the caring and tenderness I need” and “when I fail at something that’s important to me, I tend to feel alone in my failure.”

Items 1, 2, 4, 6, 8, 11, 13, 16, 18, 20, 21, 24, and 25 are reverse scored. The mean of the item scores is calculated, with higher scores indicating greater self-compassion. The SCS has shown excellent internal consistency (Cronbach’s $\alpha = .92$). It has also demonstrated good construct and test-retest validity, and it correlates significantly with other self-compassion measures (Neff, 2003). In this study, the scale had excellent internal reliability (Cronbach’s $\alpha = .925$).

State self-compassion was measured using the State Self-Compassion Scale – Short Form (SSCS-S; see Appendix E; Neff et al., 2020). The SSCS-S is a

self-report questionnaire with six items that measure state self-compassion. The SSCS-S is on a scale ranging from one (*not at all true for me*) to five (*very true for me*). A sample item is “I feel like I’m struggling more than others right now.” Items 2, 4, and 6 are reverse scored. The mean of the item scores is calculated, and higher scores indicate greater self-compassion. The SSCS-S has shown excellent internal consistency (Cronbach’s alpha = .86). It has also demonstrated good content validity (Neff et al., 2020). In this study, the scale had good internal reliability (Cronbach’s alpha = .764).

Psychological Well-Being

Psychological well-being in this study is defined as ones’ emotional health and overall functioning. General psychological well-being refers to the relatively stable levels of mental wellness one experiences over a longer period of time. In contrast, state psychological well-being reflects momentary feelings of mental wellness. General psychological well-being was measured prior to the intervention and at follow-up testing to measure potential changes in psychological well-being. State psychological well-being was measured before the intervention, at the end of each testing day, and at follow-up testing.

General psychological well-being was measured using the Warwick-Edinburgh Mental Well-Being Scale (WEMWBS; see Appendix F; Tennant et al., 2007). The WEMWBS is a self-report questionnaire with 14 items that measure aspects of mental health. Participants are instructed to indicate what best describes their experiences over the past two weeks. The WEMWBS is on a

scale ranging from one (*none of the time*) to five (*all of the time*). Sample items include “I’ve been feeling good about myself” and “I’ve been interested in new things.” When scoring this measure, all items are added, and higher scores indicate greater mental well-being. The WEMWBS has shown excellent internal consistency (Cronbach’s alpha = .91). It has also demonstrated good content, criterion, and test-retest validity (Tennant et al., 2007). In this study, the scale had excellent internal reliability (Cronbach’s alpha = .894).

State psychological well-being was measured using the Positive and Negative Affect Schedule (PANAS; see Appendix G; Watson et al., 1988). The PANAS is a self-report questionnaire with 20 items that measure positive and negative affect. The PANAS is on a scale ranging from one (*very slightly or not at all*) to five (*extremely*). Items 1, 3, 5, 9, 10, 12, 14, 16, 17, and 19 are added to determine the positive affect score, with higher scores indicating more positive affect. Items 2, 4, 6, 7, 8, 11, 13, 15, 18, and 20 are added to determine the negative affect score, with lower scores representing lower positive affect.

The PANAS has excellent internal consistency (Cronbach’s alphas = .84 to .90). It has also demonstrated good convergent and discriminant validity (Watson et al., 1988). In this study, the scale had great internal reliability (Cronbach’s alpha = .847).

Procedure

A flow chart detailing which measurements were assessed each day of the study is included in Figure 1 with the number of participants who completed each

day. Links to the survey were sent through email, text messages, and Macalester College communications. Participants choosing to volunteer followed the link to the online Qualtrics survey. After reading a brief statement and indicating informed consent, the participants were prompted to provide their email address to link their survey responses and receive further surveys. Participants were assured that their personal information would be kept confidential, would not be associated with their data, and would be removed upon completion of the intervention and follow-up. The Revised UCLA Loneliness Scale and SCS were presented in randomized order. Then, the participant continued with the one-item state loneliness assessment, SCSS-S, WEMWBS, and PANAS, presented in a randomized order. The following page collected demographic information. Then, participants were randomly assigned and presented with either the first self-compassion writing intervention prompt or the first control self-affirmation prompt (see Appendix H). Participants followed the instructions for their given intervention. After completing the intervention, participants completed the one-item state loneliness assessment, SCSS-S, and PANAS presented in a randomized order. Then, they were presented with the final page stating that they would receive an email with another prompt in two days.

On the third day of the study, a link to the second intervention was sent through email to all participants who completed the first intervention. Participants were directed to their second self-compassion or self-affirmation writing intervention. After completing the intervention, participants completed the

one-item state loneliness assessment, SCSS-S, and PANAS in randomized order. Then, they were presented with the final page stating that they would receive an email with the last prompt in two days.

On the fifth day of the study, a link to the third intervention was sent through email to all participants. Participants were directed to their third and final self-compassion or self-affirmation writing intervention. After completing the intervention, participants completed the one-item state loneliness assessment, SCSS-S, and PANAS in randomized order. Then, they were presented with the final page stating that they would receive an email with a follow-up questionnaire in one week.

One week after finishing the third intervention, all participants received a follow-up survey where they completed the Revised UCLA Loneliness Scale, WEMWBS, one-item state loneliness assessment, SCSS-S, and PANAS presented in a randomized order. After completing these scales, participants were shown a debriefing form explaining the study's purpose, providing the researchers' contact information, and thanking them for their time. Participants were once again assured that their personal information would be kept confidential, would not be associated with their data, and would be removed.

Results

This study examined the impact of a self-compassion (SC) intervention on feelings of loneliness compared to a control self-affirmation (SA) intervention. Over five time periods, I measured general and state loneliness, general and state

self-compassion, and general and state well-being. Specifically, the state versions were administered on all five days, general loneliness and well-being scales were given two times, and general self-compassion was measured once. The means and standard deviations for all variables appear in Table 1. Bivariate correlations among all variables appear in Table 2. Overall, the variables were highly correlated with each other in the expected directions.

First, to ensure that the self-compassion and self-affirmation groups did not differ on any variable at baseline, I ran a multivariate analysis of variance (MANOVA) comparing the self-compassion and self-affirmation groups on all pre-testing variables. I found that the groups did not differ significantly at pre-intervention testing ($F(1,122) = 1.10, p = .366, \eta^2 = .054$).

Next, to confirm that the intervention was effective in impacting self-compassion, I examined its effects on day 1. To analyze this, I conducted a 2 x 2 mixed-model analysis of variance (ANOVA) on state variables with time (pre-intervention/post-intervention day 1) as a within-subject variable and condition (self-compassion/self-affirmation) as a between-subject variable. The main effect of time on state loneliness was significant, indicating a decrease in feelings of loneliness ($F(1,120) = 44.68, p < .001, \eta^2 = .271$). The main effect of the condition on state loneliness was also significant ($F(1,120) = 5.576, p = .020, \eta^2 = .044$), suggesting a pre-existing difference between the two conditions. There was not a significant interaction between time and condition ($F(1,120) = .348, p = .556, \eta^2 = .003$). For state self-compassion, there was a significant main effect of

time, indicating an increase in state self-compassion ($F(1,120) = 18.74, p < .001, \eta^2 = .135$). The main effect of the condition on state self-compassion was not significant ($F(1,120) = 3.711, p = .056, \eta^2 = .030$), nor was there a significant interaction between time and condition ($F(1,120) = .051, p = .882, \eta^2 = .000$). For state well-being, there was a significant main effect of time, indicating an increase in state well-being ($F(1,120) = 35.60, p < .001, \eta^2 = .229$). The main effect of the condition on state well-being was also significant ($F(1,120) = 4.522, p = .036, \eta^2 = .036$), suggesting a pre-existing difference between the two conditions. There was not a significant interaction between time and condition ($F(1,120) = 1.392, p = .240, \eta^2 = .011$). These results are consistent with my hypotheses in that self-compassion and well-being were heightened while loneliness was reduced, but it is inconsistent in that effects on loneliness did not differ by condition.

I also examined the main effect of condition for both state loneliness and state well-being that suggests a pre-existing difference between the two conditions. I conducted a series of t-tests that revealed no difference, supporting the MANOVA results that no difference is present.

I then tested my central hypothesis by analyzing the impact of the interventions on the experience of general loneliness. I conducted a 2 x 2 mixed-model ANOVA on general loneliness with time (pre-intervention/follow-up) as a within-subject variable and condition (self-compassion/self-affirmation) as a between-subject variable. The main effect of time on general loneliness was not significant ($F(1,82) = 1.00, p = .319, \eta^2 =$

.012). The main effect of the condition on general loneliness was also not significant ($F(1,82) = .377, p = .541, \eta^2 = .005$). Further, there was not a significant interaction between time and condition ($F(1,82) = .305, p = .583, \eta^2 = .004$). These results are inconsistent with my hypothesis in that the self-compassion group did not experience a decrease in feelings of loneliness.

Then, I conducted a similar analysis to look at the impact of the interventions on general well-being. The main effect of time on general well-being was significant, indicating an improvement in general well-being ($F(1,82) = 8.03, p = .006, \eta^2 = .089$). The main effect of the condition on general well-being was not significant ($F(1,82) = .104, p = .748, \eta^2 = .001$), nor was there a significant interaction between time and condition ($F(1,82) = .460, p = .500, \eta^2 = .006$). These results are consistent with my hypothesis in that general well-being was improved for both groups.

Exploratory Analyses

To explore my data more fully, I decided to look at the levels of all of my state variables over time as a function of condition. This analysis allowed me to examine the short-term effects of state variables as a result of the interventions. To analyze this, I conducted a 5 x 2 mixed-model ANOVA on state variables with time (pre-intervention/post-intervention day 1/day 3/day 5/follow-up) as a within-subject variable and condition (self-compassion/self-affirmation) as a between-subject variable. Means and standard deviations for each condition for all state measures collected at pre-intervention and follow-up appear in Table 3.

The main effect of time on state loneliness was significant, indicating a decrease in feelings of loneliness ($F(4,80) = 10.422, p < .001, \eta^2 = .343$). The main effect of the condition on state loneliness was not significant ($F(4,80) = .939, p = .335, \eta^2 = .011$), nor was there a significant interaction between time and condition ($F(4,80) = 1.259, p = .293, \eta^2 = .059$). For state self-compassion, the main effect of time was significant, indicating an increase in state self-compassion ($F(4,80) = 4.606, p = .002, \eta^2 = .187$). The main effect of the condition on state self-compassion was not significant ($F(4,80) = .007, p = .932, \eta^2 = .000$), nor was there a significant interaction between time and condition ($F(4,80) = 2.149, p = .082, \eta^2 = .097$). For state well-being, the main effect of time was significant, indicating an increase in state well-being ($F(4,80) = 9.880, p < .001, \eta^2 = .331$). The main effect of the condition on state well-being was not significant ($F(4,80) = .013, p = .911, \eta^2 = .000$). There was a significant interaction between time and condition ($F(4,80) = 3.790, p = .007, \eta^2 = .159$), indicating that state well-being differed by condition over time.

To further examine the interaction between time and condition for state well-being, I conducted follow-up post-hoc LSD comparisons. For the self-compassion group, the pre-intervention measurement differed significantly from all other time points (all p 's $< .05$): post-intervention day 1, day 3, day 5, and follow-up. This indicates that the self-compassion intervention's impact on state well-being persisted over the course of the study. In contrast, for the self-affirmation group, the pre-intervention measurement differed significantly

only from post-intervention day 1 ($p < .05$). Post-intervention day 1 differed significantly from all other time points (all p 's $< .05$): pre-intervention day 1, day 3, day 5, and follow-up. This suggests a boost in well-being following the first prompt but that it was not sustained over the course of the study. These comparisons indicate a benefit in state well-being for the self-compassion group that is not present in the self-affirmation condition.

Since there was a significant time effect for all state variables, I conducted follow-up post-hoc LSD comparisons. For state self-compassion, the pre-intervention measurement differed significantly from all other time points (all p 's $< .05$): post-intervention day 1, day 3, day 5, and follow-up. No other time points differed from each other. This demonstrates that state self-compassion increased following the first intervention prompt and that this increase was sustained over the intervention. For state loneliness, the pre-intervention measurement differed significantly from all other time points (all p 's $< .05$): post-intervention day 1, day 3, day 5, and follow-up. These results show a decrease in state loneliness following the first intervention prompt and that this decrease was sustained over the study. For state well-being, the pre-intervention measurement differed significantly from three other time points (all p 's $< .05$): post-intervention day 1, day 3, and follow-up. Pre-intervention did not differ from day 5 ($p = .216$). This shows an improvement in mood following the first intervention prompt, but that improvement was not sustained over the course of the study.

State loneliness means over time for each condition are shown in Figure 2. Figures 3 and 4 show the means over time by condition for state self-compassion and state well-being, respectively.

Discussion

This study examined the effects of a self-compassion intervention on feelings of loneliness in college students compared to a control self-affirmation intervention. I tested this during the COVID-19 pandemic setting to investigate potential interventions following a natural disaster.

When comparing pre-intervention to post-intervention on day 1, there was a significant decrease in state loneliness for both groups. There was also a significant increase in state well-being and state self-compassion for both groups. These results show that the interventions effectively targeted self-compassion, and they demonstrate the short-term impacts of the first prompts on all state variables. My results also suggest that there is a benefit of the self-compassion intervention when analyzing state well-being. While these results were inconsistent with my hypothesis that effects did not differ by condition, they demonstrate the positive impact of participating in the interventions.

When comparing pre-intervention to follow-up, there was no significant change in general loneliness for either group. This is inconsistent with my hypothesis in that the self-compassion group did not experience a change in feelings of loneliness. Even so, this is consistent with past research that displays how difficult it is to impact general loneliness. Loneliness may not have been

affected by the self-compassion intervention because loneliness is often alleviated by connection with others. This intervention did not offer that and instead focused on a connection to oneself, which could be a reason that this intervention was unsuccessful. Overall, this study aimed to decrease loneliness by having the participants complete three days of writing; however, even the three interventions were not impactful enough to affect general loneliness.

While there was not a significant impact on general loneliness, there was a significant increase in general well-being for both groups. These results establish the impact of the interventions on well-being that were sustained over the testing period. This demonstrates that this study positively impacted well-being regardless of condition, providing participants with a boost in mood and supporting my hypothesis. This main finding has implications for the future in that these interventions are successful at improving well-being.

I also found that all state and general variables were significantly correlated in the expected directions, as shown in Table 2. This supports the idea that loneliness, self-compassion, and well-being are intricately connected concepts and are difficult to separate in analyses. Considering that all variables correlated with each other and demonstrate high similarity, it is intriguing that some were impacted by the interventions and others were not. Namely, from pre-intervention to follow-up, there was no change in general loneliness, but general well-being was affected. This finding is especially interesting because the correlation between these two variables is significant. These results may be

because well-being, even on a general level, tends to fluctuate more than loneliness. Specifically, well-being can change based on mood, whereas loneliness tends to be more stable. The differences between impacts also provide evidence of a distinction between the concepts.

Interestingly, state and general loneliness had different outcomes as a result of the interventions. State loneliness was impacted by both self-compassion and self-affirmation interventions, but general loneliness was not affected by either. This suggests that state or momentary feelings may be easier to address than general or long-term ones. The two approaches to measuring loneliness may also differ in effectiveness. Namely, the state loneliness questionnaire consisted of one question, whereas the general loneliness consisted of 20. Although they both have been shown to test loneliness effectively, the two measures could differ in the aspects of loneliness they address. The state scale is vague and spans the breadth of loneliness, while the general scale is more specific and features many elements of social loneliness. These distinctions could lead to the notable differences between state and general loneliness in this study.

Exploratory Analyses

Exploratory analyses of state measures revealed a significant increase in self-compassion following the first intervention prompt that was sustained over the course of the intervention. Similarly, there was a significant decrease in loneliness after the first prompt that was maintained over the intervention. These results demonstrate that the first day of the intervention successfully reduced

feelings of loneliness and increased self-compassionate feelings. The sustained effect over the intervention shows that one prompt may be effective enough to preserve the impact on self-compassion and loneliness. In the future, it would be useful to test whether the second and third intervention prompts have any effect on state variables or if the first prompt was enough to cause a continued impact. This could be examined by testing only one prompt instead of three, with a follow-up questionnaire matching this study.

For state well-being, there was a significant increase following the first intervention prompt that was sustained on day 3 and follow-up. It was not sustained on day 5. This may be because mood tends to fluctuate more quickly than self-compassion or loneliness. It may also be because of the specific prompt on day 5; both groups were asked to write about an event that made them feel negative about themselves. While participants were prompted to respond to this event either with a compassionate and open mind or with affirmations of their reaction to the event, thinking about their event in detail could have stirred negative feelings that lingered after the prompt. This would have influenced the questionnaire response and could be a reason for why well-being on day 5 was not sustained.

There was a significant interaction between time and condition for state well-being that suggests a benefit to the self-compassion intervention. While the self-affirmation intervention experienced a boost in well-being following the first day of the intervention, this was not sustained over the course of the intervention.

However, the self-compassion group experienced an increase in well-being following the first day of the intervention that was sustained throughout the intervention. While this difference does not appear for state loneliness as I had expected, it does confirm my initial hypothesis that a self-compassion intervention holds more benefit for the participant. These results could be because self-compassion often induces a positive mood towards oneself, whereas self-affirmation may do this to a lesser extent. It may be that the self-compassion prompts were more successful in targeting well-being compared to the self-affirmation prompts. Further, since the self-compassion prompts asked participants to recall a negative event, I wonder if this recollection induced a negative mood. Then, when participating in the self-compassion reflection, the participant may have interpreted their well-being as even greater in comparison to their negative account. Additionally, these condition differences are present only for state well-being and are not present for state loneliness or self-compassion. This may be because well-being and mood tend to fluctuate more than loneliness or self-compassion; it also may be because well-being encompasses a wide range of emotions, while loneliness and self-compassion are specific. The self-compassion prompts may have successfully induced happiness for some participants while relieving anxiety for others. But, because well-being was measured as a broad concept, we do not know what dimension was affected in particular. Overall, these findings suggest that while both interventions are successful for improving state well-being, state self-compassion, and state

loneliness, the self-compassion intervention has a distinctive impact on state well-being.

Implications

The results of this study are consistent with past research that found that general loneliness is difficult to change. While this study does not establish a way to impact general loneliness, it points the field toward resilience interventions. The main implication of these findings is that this study offers a promising way to affect short-term feelings of loneliness. The interventions also enhance short-term self-compassion and well-being as well as long-term well-being. This provides a practical intervention for individuals that is impactful, cost-effective, and time-friendly.

Additionally, this study builds on past research that self-compassion may be linked to loneliness. The strong, negative correlations between self-compassion and loneliness variables demonstrate that the two concepts are strongly connected on both state and general levels. With these strong correlations indicating a considerable overlap between the two, it is interesting that self-compassion did not impact general loneliness. This may be because loneliness can often be alleviated via a connection with others; in this study, the self-compassion intervention offered solely a connection to oneself. To further support the link between self-compassion and loneliness, there were decreased levels of state loneliness following the self-compassion intervention. This suggests that self-compassion was enough to offer a short-term decrease in loneliness, but it

was not enough to alter feelings of general, or trait, loneliness. Since trait loneliness is considered an attribute of an individual instead of momentary feelings of state loneliness, more intensive interventions may be necessary to elicit change.

Along similar lines, this study also shows a significant association between loneliness and well-being, evident in their strong negative correlations. They are associated at the state and general levels, suggesting that the two concepts consist of very similar aspects. They do, however, differ in response to the interventions. State loneliness, state well-being, and general well-being were all impacted, while general loneliness was not. This supports the idea that general loneliness is more challenging to change than mood or any state variable.

Lastly, this study shows that self-compassion and self-affirmation are closely related. The near-identical results between groups indicate that self-compassion and self-affirmation positively affect well-being, as expected, but neither impacts loneliness. Both groups experienced the same outcomes on all variables beyond the additional boost in general well-being for the self-compassion group, suggesting that the two cannot be clearly distinguished in this study. This may be a fault of the prompts such that the self-compassion and self-affirmation groups were not distinct enough to see marked differences, or it may be that the two concepts are too closely connected. Future studies might assess which of these interpretations is accurate.

Strengths

This study had multiple strengths. First, it utilized reliable and valid measures that are supported by previous research. In the present study, all variables had high internal reliability; this demonstrates the strength of the questionnaires used in this intervention. Next, the current study begins to fill in gaps of past research such that this intervention was cost-effective, easily accessible, time-friendly, and set in an individual rather than a group setting. Past research has often focused on clinical interventions that can be costly and time-consuming (Bessaha et al., 2019; Mann et al., 2017). This study offered a free intervention that can be done in a short period of time at any point that an individual feels they might need it. The intervention was presented in an online format in this study, but it can be done in whatever form the individual finds most impactful. It takes only ten minutes and offers short-term improvements in well-being, self-compassion, and loneliness. Lastly, by looking at both state and general variables, I thoroughly explored the impacts of the interventions in both a short-term and long-term time frame.

Limitations

The present study had multiple limitations. First, it is possible that the writing prompts did not fully represent self-compassion or self-affirmation. While the prompts were adapted from previous research, their validity has not been evaluated to ensure that they address self-compassion or self-affirmation. Given the boost in self-compassion in the self-affirmation group, my data suggest that the self-affirmation prompts may not be specific enough. Alternatively, the two

concepts may be too similar to compare within an intervention. This was evident in the written response sections of the interventions, where participants responded to self-compassion or self-affirmation prompts. More than one person in the self-compassion group wrote about a self-affirmation within the written responses and vice versa. For example, when prompted to respond to an adverse event with kindness and understanding, a participant in the self-compassion group wrote: “I don't think this was my fault. COVID was a stressful event for everyone, and I did my best.” While this does express compassion towards oneself, it uses the language of self-affirmation, demonstrating how easily the two concepts can be confused. Similarly, when a participant in the self-affirmation group was prompted to describe a situation that made them feel proud and why, one participant wrote: “I did what was best for me and I am proud that I was able to see what I needed and give it to myself.” This responds to the prompt, but it is framed in a self-compassionate way, providing love and kindness to oneself. These similar responses could be a fault of the prompts themselves or that self-compassion and self-affirmation are too closely related to be separated from each other.

The prompts for the two conditions differed in their invocation of negative life events. The self-compassion prompts asked participants to recall an adverse event, which could have provoked negative feelings. Contrary to this, two of the three self-affirmation prompts asked participants to write about something positive, while only one referenced an adverse event. While both interventions

invited the participants to respond to themselves positively, it is possible that the self-compassion group would feel worse because they were asked to consider negative events consistently. In this case, I would have expected to see a skew in favor of the self-affirmation intervention. However, this was not true, and my data instead suggested a slight benefit to the self-compassion intervention. Regardless, it might be useful to keep the valence of the prompts consistent across the interventions in future studies.

Another limitation is that writing itself is a solitary exercise. It may be true that loneliness cannot be quelled unless an intervention is more directly linked to social connection. For example, a discussion or conversation exercise with a person or group may decrease feelings of loneliness relative to a solitary writing intervention. In the future, it would be beneficial to compare connective and solitary interventions.

Next, although my goal was to examine the effects of this intervention within a pandemic setting, the pandemic could have introduced noise into the sample that I could not account for. This could include anxious feelings, unpredictable circumstances, or increased stress. These feelings could have affected participants' well-being, loneliness, or self-compassion. In this case, changes evident in my data might be unrelated to the interventions themselves. Further, stress and negative affect could have been introduced via anti-Black racism and the fight for racial justice that became especially pronounced throughout 2020 and 2021. Additionally, one set of participants completed

questionnaires following the week of the 2020 United States presidential election, which could have altered mood via increased election-related stress. Participants' responses may have been influenced by feelings surrounding this event, but it is not possible to control for this potential noise. Because both groups experienced all of these factors, it does not serve as a confound in my study; however, I expect that these factors altered many of my participants' mood and well-being. In the future, it would be useful to conduct this experiment during a time that has fewer extraordinary and remarkable events. Lastly, it is important to note that a considerable strength of this study is that it was indeed successful given the challenging times experienced throughout the experiment.

Additionally, this study repeatedly tested the same measures. Familiarity with the questionnaires could have impacted participants' responses such that they could predict what the questions addressed. By speculating about the aim of the questionnaires, the participants could have implicitly or explicitly altered their responses to reflect what they thought the researchers were looking for.

Another limitation is that this study had a relatively high rate of attrition. Although 122 participants completed the first day, only 84 completed the entire intervention. Separately, 26 people started the study and pre-intervention analyses but stopped when they reached the first intervention prompt. This high attrition rate demonstrates a weakness in my research in that some participants were reluctant to partake in the writing intervention multiple times or even just once. To ensure that those with partial data did not differ from those who completed

everything, I ran a MANOVA comparing the incomplete data and complete data groups. The results of this analysis showed that there is indeed no significant difference between those who completed and those who stopped the study ($F(1,122) = .457, p = .839, \eta^2 = .023$). This tells us that those who improved over the course of the intervention were not skewed in some way.

Additionally, although the baseline survey responses of the two conditions did not differ significantly, several analyses yield significant condition effects, suggesting a potential pre-existing skew. This anomaly warrants fuller investigation.

Lastly, I used convenience and snowball sampling to recruit participants. A clear impact of these techniques is that my sample was primarily made up of cisgender White women, limiting my study's generalizability. If I were to utilize a different distribution option, I might have been able to gather a more diverse sample, which could have led to different results. Different genders and races may experience varying environments that could influence the impact of loneliness. Because of this possible effect, it is vital to test a more diverse sample in the future.

Future Research

There are many options for future research surrounding the relationship between self-compassion and loneliness. First, it may be useful to conduct a qualitative analysis of the intervention responses from this study. A qualitative analysis could help find evidence for full engagement with the prompts. It would

also allow for a fuller examination of the overlap between the two conditions. Based on the results of this analysis, the prompts could be fine-tuned to ensure that the self-compassion intervention is more distinct from the self-affirmation intervention. Additionally, the responses could be coded for specific themes that could then be correlated with changes in general loneliness. Doing this would provide more detailed information to understand issues associated with reductions in feelings of loneliness.

Next, this intervention could be altered to have one prompt instead of three. Since the effects occurred following the first intervention and there was no continued increase in well-being, it would be useful to replicate this study with only one prompt and a follow-up. It could occur over the same time period to compare directly with the results of this study.

Replicating this study in a non-pandemic time would also establish whether the present study's findings were impacted by factors related to COVID-19. The pandemic has a notable social impact on many individuals, and physical distancing and isolation measures have led many people to report higher feelings of loneliness. Reintroducing social connections in a non-pandemic time would allow for a more typical measure of loneliness and the impact of this intervention. By repeating in a non-pandemic time, this could remove some of the noise within my sample and target the relationship between self-compassion and loneliness more clearly.

Additionally, as discussed earlier, testing the relationship between self-compassion and loneliness using a different control intervention would be illuminating. Self-compassion and self-affirmation may consist of overlapping dimensions, so it may be useful to repeat this study using a different resilience practice as a control. One example could be a breathing exercise. Breathing exercises can improve well-being, but they do not have any demonstrated impact on loneliness. These practices differ markedly from self-compassion, meaning the control and intervention groups would be more distinct. Along similar lines, an alternative resilience practice such as a loving-kindness meditation could be tested to see if it impacts general loneliness. A loving-kindness meditation could be impactful for loneliness because it not only introduces self-compassion but it induces feelings of connection and compassion towards others. This may address loneliness more than self-compassion writing since it involves connection, a piece often lacking among those with high feelings of loneliness.

Lastly, another idea for future research would be varying the form of the interventions. It is possible that not everyone resonates with writing interventions, so utilizing a meditation, discussion or conversation, or breathing practice could offer different results. Offering a wider array of interventions might also reveal which practices work best for which types of participants.

Conclusion

This study aimed to examine the effects of a self-compassion and a self-affirmation intervention on feelings of loneliness. It found short-term effects

of both interventions of decreasing feelings of state loneliness and increasing state well-being and state self-compassion as well as long-term effects of improving general well-being. The self-compassion intervention had a distinct impact on state well-being. While there was no significant change in general loneliness, this study offers new insight into an impactful, cost-effective, and time-friendly intervention.

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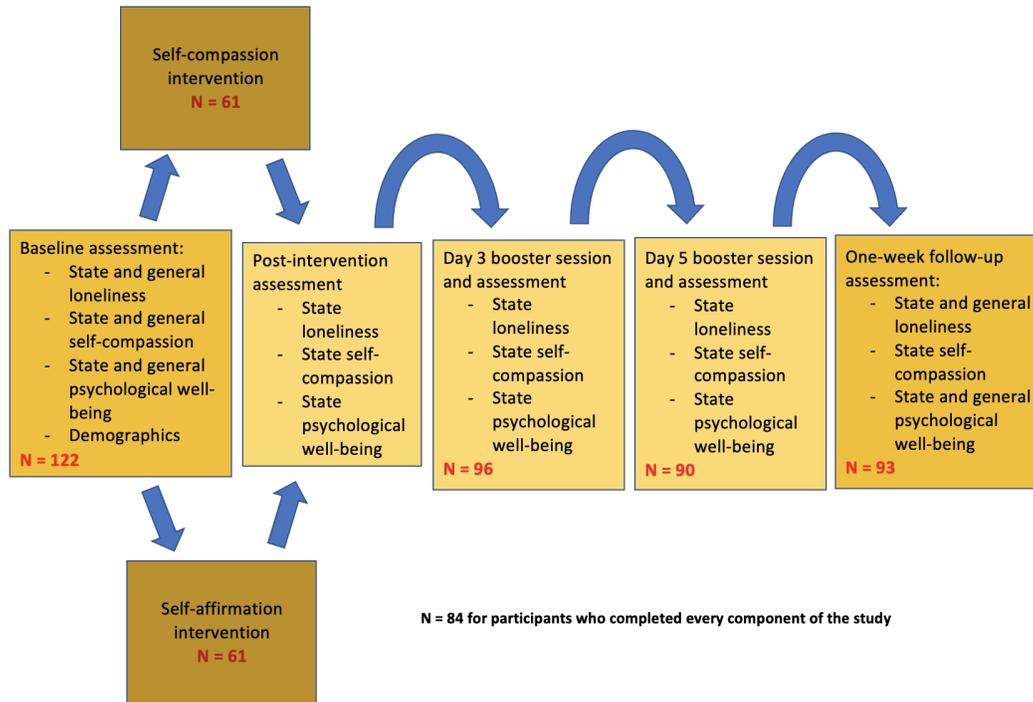
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Figure 1

Assessment Flow Chart



N = 84 for participants who completed every component of the study

Figure 2

State Loneliness Mean Across the Intervention for Both Conditions

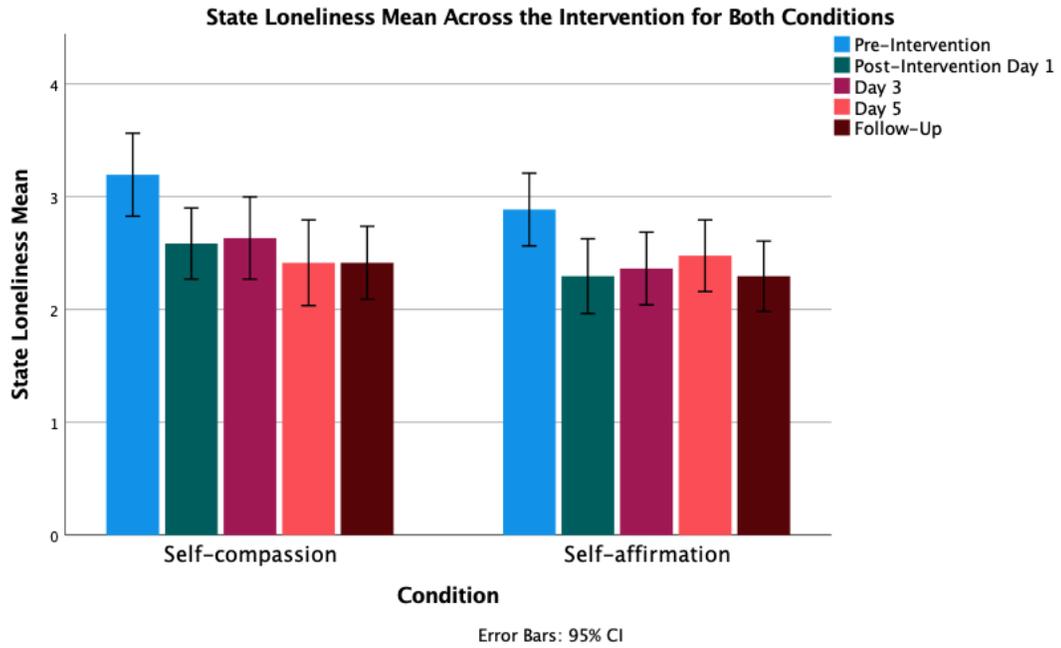


Figure 3

State Self-Compassion Mean Across the Intervention for Both Conditions

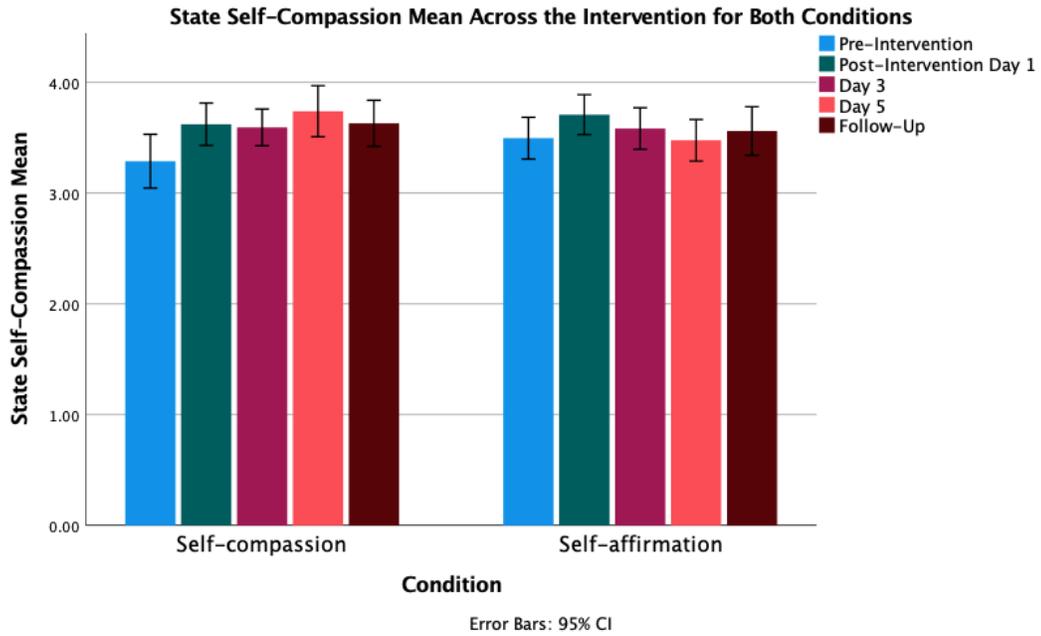


Figure 4

State Well-Being Mean Across the Intervention for Both Conditions

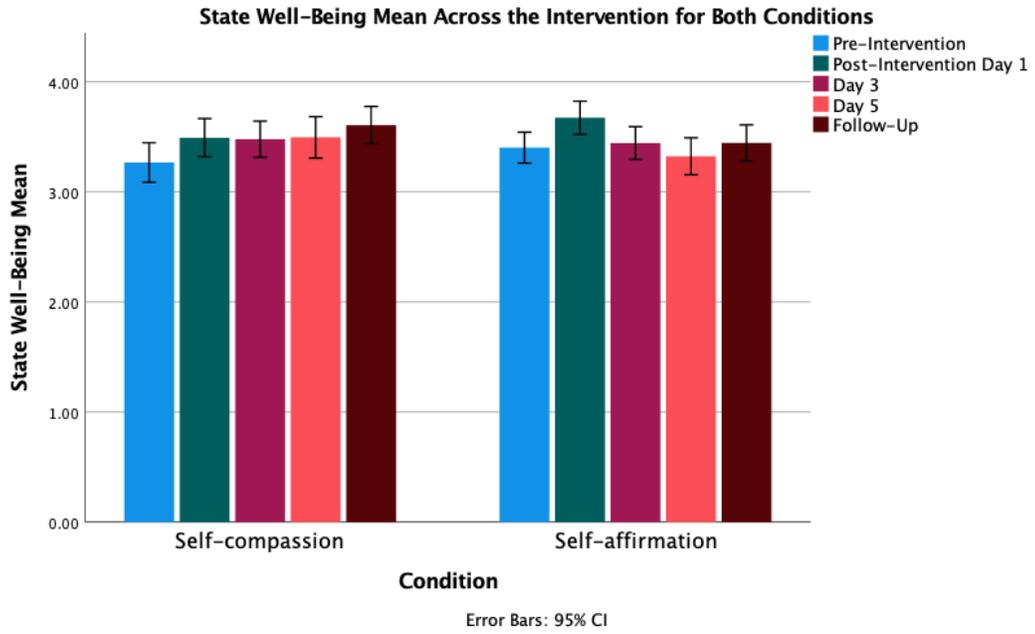


Table 1*Descriptive Statistics for Loneliness, Self-Compassion, and Well-Being*

	Day 1 Pre-Intervention	Day 1 Post-Intervention	Day 3	Day 5	Follow-up
General Loneliness Mean	2.1 (0.5)	-	-	-	2.0 (0.5)
State Loneliness Mean	3.0 (1.2)	2.4 (1.1)	2.4 (1.1)	2.5 (1.1)	2.4 (1.0)
General Self-Compassion Mean	2.9 (0.6)	-	-	-	-
State Self-Compassion Mean	3.4 (0.7)	3.6 (0.7)	3.6 (0.6)	3.6 (0.7)	3.6 (0.7)
General Well-Being Mean	3.1 (0.6)	-	-	-	3.3 (0.5)
State Well-Being Mean	3.3 (0.5)	3.6 (0.6)	3.5 (0.5)	3.4 (0.6)	3.5 (0.6)

Table 2*Bivariate Correlations for All Variables Pre-Intervention*

	State Loneliness	General Loneliness	State Self-Compassion	General Self-Compassion	State Well-Being	General Well-Being
State Loneliness	-	.473*	-.475*	-.411*	-.531*	-.545*
General Loneliness	-	-	-.519*	-.400*	-.534*	-.610*
State Self-Compassion	-	-	-	.739*	.675*	.663*
General Self-Compassion	-	-	-	-	.586*	.649*
State Well-Being	-	-	-	-	-	.758*
General Well-Being	-	-	-	-	-	-

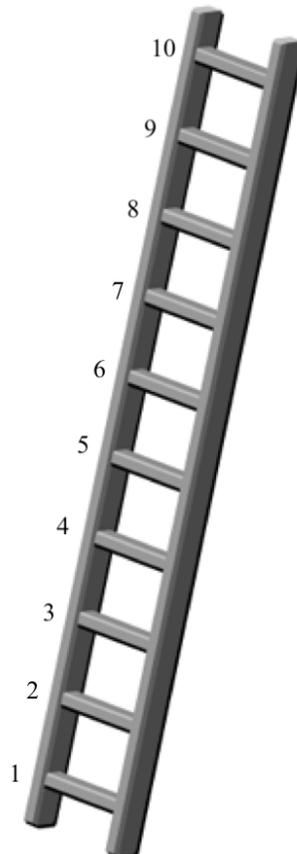
Table 3*State Measures Pre-Intervention and Follow-Up*

	Self-Compassion		Self-Affirmation	
	Pre-Intervention	Follow-Up	Pre-Intervention	Follow-Up
Loneliness Mean	3.20 (1.17)	2.41 (1.02)	2.89 (1.06)	2.30 (1.03)
Self-Compassion Mean	3.29 (.768)	3.63 (.659)	3.50 (.620)	3.56 (.723)
Well-Being Mean	3.27 (.569)	3.61 (.537)	3.40 (.464)	3.45 (.538)

Appendix A*Demographic Questionnaire*

1. What is your age? _____
2. What is your year in school?
 - a. First-year
 - b. Sophomore
 - c. Junior
 - d. Senior
 - e. Recent student within the last calendar year (graduated, deferred, took leave of absence, etc.)
 - f. Other: _____
3. Please indicate your gender identity below (select all that apply):
 - a. Woman
 - b. Man
 - c. Transgender
 - d. Non-binary
 - e. Other: _____
 - f. Prefer not to answer
4. Please indicate your race/ethnicity below (select all that apply):
 - a. American Indian or Alaskan Native
 - b. Asian
 - c. Black or African-American

- d. Latinx
 - e. Native Hawaiian or other Pacific Islander
 - f. White
 - g. Other: _____
 - h. Prefer not to answer
5. At the top of the ladder are the people who are the best off, those who have the most money, most education, and best jobs. At the bottom are the people who are the worst off, those who have the least money, least education, worst jobs, or no job. Please identify the number of the rung that best represents where you think you stand on the ladder.



Appendix B*Revised UCLA Loneliness Scale*

Please read each statement carefully before answering. Please answer the following items by indicating the answer that applies.

1. I feel in tune with the people around me. *Never, Rarely, Sometimes, Often*
2. I lack companionship. *Never, Rarely, Sometimes, Often*
3. There is no one I can turn to. *Never, Rarely, Sometimes, Often*
4. I do not feel alone. *Never, Rarely, Sometimes, Often*
5. I feel part of a group of friends. *Never, Rarely, Sometimes, Often*
6. I have a lot in common with the people around me. *Never, Rarely, Sometimes, Often*
7. I am no longer close to anyone. *Never, Rarely, Sometimes, Often*
8. My interests and ideas are not shared by those around me. *Never, Rarely, Sometimes, Often*
9. I am an outgoing person. *Never, Rarely, Sometimes, Often*
10. There are people I feel close to. *Never, Rarely, Sometimes, Often*
11. I feel left out. *Never, Rarely, Sometimes, Often*
12. My social relationships are superficial. *Never, Rarely, Sometimes, Often*
13. No one really knows me well. *Never, Rarely, Sometimes, Often*
14. I feel isolated from others. *Never, Rarely, Sometimes, Often*
15. I can find companionship when I want it. *Never, Rarely, Sometimes, Often*

16. There are people who really understand me. *Never, Rarely, Sometimes,*

Often

17. I am unhappy being so withdrawn. *Never, Rarely, Sometimes, Often*

18. People are around me but not with me. *Never, Rarely, Sometimes, Often*

19. There are people I can talk to. *Never, Rarely, Sometimes, Often*

20. There are people I can turn to. *Never, Rarely, Sometimes, Often*

Appendix C

State Loneliness Assessment

Think about how you are feeling at this very moment.

1. I am feeling lonely right now. *Strongly disagree, Disagree, Neither agree nor disagree, Agree, Strongly Agree*

Appendix D

Self-Compassion Scale

HOW I TYPICALLY ACT TOWARDS MYSELF IN DIFFICULT TIMES

Please read each statement carefully before answering. Indicate how often you behave in the stated manner.

1. I'm disapproving and judgmental about my own flaws and inadequacies.
Almost never, Rarely, Sometimes, Often, Almost Always
2. When I'm feeling down I tend to obsess and fixate on everything that's wrong.
Almost never, Rarely, Sometimes, Often, Almost Always
3. When things are going badly for me, I see the difficulties as part of life that everyone goes through.
Almost never, Rarely, Sometimes, Often, Almost Always
4. When I think about my inadequacies, it tends to make me feel more separate and cut off from the rest of the world.
Almost never, Rarely, Sometimes, Often, Almost Always
5. I try to be loving towards myself when I'm feeling emotional pain.
Almost never, Rarely, Sometimes, Often, Almost Always
6. When I fail at something important to me I become consumed by feelings of inadequacy.
Almost never, Rarely, Sometimes, Often, Almost Always
7. When I'm down, I remind myself that there are lots of other people in the world feeling like I am.
Almost never, Rarely, Sometimes, Often, Almost Always

8. When times are really difficult, I tend to be tough on myself. *Almost never, Rarely, Sometimes, Often, Almost Always*
9. When something upsets me I try to keep my emotions in balance. *Almost never, Rarely, Sometimes, Often, Almost Always*
10. When I feel inadequate in some way, I try to remind myself that feelings of inadequacy are shared by most people. *Almost never, Rarely, Sometimes, Often, Almost Always*
11. I'm intolerant and impatient towards those aspects of my personality I don't like. *Almost never, Rarely, Sometimes, Often, Almost Always*
12. When I'm going through a very hard time, I give myself the caring and tenderness I need. *Almost never, Rarely, Sometimes, Often, Almost Always*
13. When I'm feeling down, I tend to feel like most other people are probably happier than I am. *Almost never, Rarely, Sometimes, Often, Almost Always*
14. When something painful happens I try to take a balanced view of the situation. *Almost never, Rarely, Sometimes, Often, Almost Always*
15. I try to see my failings as part of the human condition. *Almost never, Rarely, Sometimes, Often, Almost Always*
16. When I see aspects of myself that I don't like, I get down on myself. *Almost never, Rarely, Sometimes, Often, Almost Always*
17. When I fail at something important to me I try to keep things in perspective. *Almost never, Rarely, Sometimes, Often, Almost Always*

18. When I'm really struggling, I tend to feel like other people must be having an easier time of it. *Almost never, Rarely, Sometimes, Often, Almost Always*
19. I'm kind to myself when I'm experiencing suffering. *Almost never, Rarely, Sometimes, Often, Almost Always*
20. When something upsets me I get carried away with my feelings. *Almost never, Rarely, Sometimes, Often, Almost Always*
21. I can be a bit cold-hearted towards myself when I'm experiencing suffering. *Almost never, Rarely, Sometimes, Often, Almost Always*
22. When I'm feeling down I try to approach my feelings with curiosity and openness. *Almost never, Rarely, Sometimes, Often, Almost Always*
23. I'm tolerant of my own flaws and inadequacies. *Almost never, Rarely, Sometimes, Often, Almost Always*
24. When something painful happens I tend to blow the incident out of proportion. *Almost never, Rarely, Sometimes, Often, Almost Always*
25. When I fail at something that's important to me, I tend to feel alone in my failure. *Almost never, Rarely, Sometimes, Often, Almost Always*
26. I try to be understanding and patient towards those aspects of my personality I don't like. *Almost never, Rarely, Sometimes, Often, Almost Always*

Appendix E

State Self-Compassion Scale – Short Form

Please read each statement carefully before answering. Please indicate how well each statement applies to how you are feeling toward yourself right now.

1. I'm giving myself the caring and tenderness I need. *Not at all true for me, Slightly true for me, About halfway true for me, Mostly true for me, Very true for me*
2. I'm obsessing and fixating on everything that's wrong. *Not at all true for me, Slightly true for me, About halfway true for me, Mostly true for me, Very true for me*
3. I'm remembering that there are lots of others in the world feeling like I am. *Not at all true for me, Slightly true for me, About halfway true for me, Mostly true for me, Very true for me*
4. I feel intolerant and impatient toward myself. *Not at all true for me, Slightly true for me, About halfway true for me, Mostly true for me, Very true for me*
5. I'm keeping things in perspective. *Not at all true for me, Slightly true for me, About halfway true for me, Mostly true for me, Very true for me*
6. I feel like I'm struggling more than others right now. *Not at all true for me, Slightly true for me, About halfway true for me, Mostly true for me, Very true for me*

Appendix F*Warwick-Edinburgh Mental Well-Being Scale*

Please read each statement carefully before answering. Please indicate what best describes your experience of each over the last two weeks.

1. I've been feeling optimistic about the future. *None of the time, Rarely, Some of the time, Often, All of the time*
2. I've been feeling useful. *None of the time, Rarely, Some of the time, Often, All of the time*
3. I've been feeling relaxed. *None of the time, Rarely, Some of the time, Often, All of the time*
4. I've been feeling interested in other people. *None of the time, Rarely, Some of the time, Often, All of the time*
5. I've had energy to spare. *None of the time, Rarely, Some of the time, Often, All of the time*
6. I've been dealing with problems well. *None of the time, Rarely, Some of the time, Often, All of the time*
7. I've been thinking clearly. *None of the time, Rarely, Some of the time, Often, All of the time*
8. I've been feeling good about myself. *None of the time, Rarely, Some of the time, Often, All of the time*
9. I've been feeling close to other people. *None of the time, Rarely, Some of the time, Often, All of the time*

10. I've been feeling confident. *None of the time, Rarely, Some of the time, Often, All of the time*
11. I've been able to make up my own mind about things. *None of the time, Rarely, Some of the time, Often, All of the time*
12. I've been feeling loved. *None of the time, Rarely, Some of the time, Often, All of the time*
13. I've been interested in new things. *None of the time, Rarely, Some of the time, Often, All of the time*
14. I've been feeling cheerful. *None of the time, Rarely, Some of the time, Often, All of the time*

Appendix G

Positive and Negative Affect Schedule

This scale consists of a number of words that describe different feelings and emotions. Read each item and then mark the appropriate answer in the space next to that word. Indicate to what extent you feel this way right now. Use the following scale to record your answers.

1 =	2 =	3 =	4 =	5 =
very slightly	a little	moderately	quite a bit	extremely
or not at all				

interested
 distressed
 excited
 upset
 strong
 guilty
 scared
 hostile
 enthusiastic
 proud

irritable
 alert
 ashamed
 inspired
 nervous
 determined
 attentive
 jittery
 active
 afraid

Appendix H

Self-Compassion and Self-Affirmation Prompts

Self-Compassion Prompts

Self-compassion is a form of self-care that includes treating yourself gently and kindly in response to perceived failure, hardships, or difficulties. Self-compassion can provide many health benefits, including increased life satisfaction, social connection, and happiness, and decreased levels of depression and anxiety. There are three main components of self-compassion:

- Self-kindness: being understanding and forgiving towards yourself
- Common humanity: realizing that all humans fail and encounter hardship as a part of life and that all people are deserving of self-compassion, especially yourself
- Mindfulness: being aware of your feelings and the situation without expressing judgment about them or yourself

Today, you will explore self-compassion writing in relation to a negative event you have experienced. Specifically, you will employ (self-kindness/common humanity/mindfulness). (one of the following, depending on the day)

1. Self-kindness can help you react to negative events and feelings in your life in a positive and sympathetic way. By approaching situations with kindness and understanding rather than judgment and self-criticism, you can experience calmness with yourself and the situation.

2. Common humanity can help you remember that you are not alone in your emotional experiences. It can validate your feelings by reminding you that all humans are imperfect and experience feelings of inadequacy. These emotions are a shared human experience, rather than one you experience alone.
3. Mindfulness can provide a balanced approach to negative emotions. When you address a negative situation with an open mind, you can observe your thoughts and feelings in a non-judgmental and receptive way. Being mindful can help you separate what you are feeling from what you are thinking about those feelings.

Prompt 1

Think about a negative event that you have experienced in the last year that made you feel bad about yourself, like something that involved failure, humiliation, or rejection.

What is your event?

type-in box

Write a sentence or two describing the event, providing details about what led up to the event, who was present, what happened, and how you felt and behaved at the time.

type-in box

Now, write a paragraph or two expressing understanding, kindness, and concern to yourself in the same way that you might express concern to a friend who has

undergone a similar experience. The more detailed your writing is, the more benefit you will receive from this intervention. We invite you to write as much as you want, and for this reason, you will be able to advance only after 5 minutes.

type-in box

Prompt 2

Think back to the negative event you used previously or think of a new event from the last year that made you feel bad about yourself.

What is your event? If it is the same as your previous event(s), please indicate that.

type-in box

Write a sentence or two describing your new event, providing details about what led up to the event, who was present, what happened, and how you felt and behaved at the time. If this is a previous event, add a new, additional detail about your experience.

type-in box

Now, write a paragraph or two imagining how others might feel and react in the same situation. Remind yourself with kindness throughout your paragraph that everyone is human, and these negative events are part of the human experience. The more detailed your writing is, the more benefit you will receive from this intervention. We invite you to write as much as you want, and for this reason, you will be able to advance only after 5 minutes.

type-in box

Prompt 3

Think back to the negative event you used previously or think of a new event from the last year that made you feel bad about yourself.

What is your event? If it is the same as your previous event(s), please indicate that.

type-in box

Write a sentence or two describing your new event, providing details about what led up to the event, who was present, what happened, and how you felt and behaved at the time. If this is a previous event, add a new, additional detail about your experience.

type-in box

Now, write a paragraph or two noticing your event with an open mind. Try to take a neutral perspective, such as if you were seeing the event play out before you. Be mindful and aware of any negative self-judgment and express kindness toward yourself if these thoughts arise. The more detailed your writing is, the more benefit you will receive from this intervention. We invite you to write as much as you want, and for this reason, you will be able to advance only after 5 minutes.

type-in box

Self-Affirmation Prompts

Self-affirmation is a process of affirming your value and worth through a positive reflection about yourself. It can provide many health benefits, including increased

positive emotions and feelings such as happiness and love, and decreased levels of distress and anxiety. Self-affirmation exercises can affirm your personal traits, self-concept, and value. It can serve as a way to support yourself and your values, especially in situations when you are feeling negatively toward yourself.

Today, you will explore self-affirmation writing.

Prompt 1

Think about a life event that you have experienced in the last year that made you feel proud of yourself.

What is your event?

type-in box

Write a sentence or two describing the event, providing details about what led up to the event, who was present, what happened, and how you felt and behaved at the time.

type-in box

Now, write a paragraph or two about this life event and how it made you feel proud. The more detailed your writing is, the more benefit you will receive from this intervention. We invite you to write as much as you want, and for this reason, you will be able to advance only after 5 minutes.

type-in box

Prompt 2

Think about an attribute you have that is really important to you, such as being physically active, relationships with friends and family, or having a sense of humor, creativity, or spirituality.

What is your attribute?

type-in box

Write a sentence or two defining this attribute and describing what it is.

type-in box

Now, write a paragraph or two about this attribute and why it is important to you.

The more detailed your writing is, the more benefit you will receive from this intervention. We invite you to write as much as you want, and for this reason, you will be able to advance only after 5 minutes.

type-in box

Prompt 3

Think about a negative event that you have experienced in the last year that made you feel bad about yourself.

What is your event?

type-in box

Write a sentence or two describing the event, providing details about what led up to the event, who was present, what happened, and how you felt and behaved at the time.

type-in box

Now, write a paragraph or two noticing and describing the positive things you did in response to this negative event. The more detailed your writing is, the more benefit you will receive from this intervention. We invite you to write as much as you want, and for this reason, you will be able to advance only after 5 minutes.

type-in box