VALUES- VERSUS MONETARY REWARD-ENHANCED EXPOSURE THERAPY FOR
THE TREATMENT OF SOCIAL ANXIETY IN EMERGING ADULTHOOD

by

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Exposure therapy represents the gold-standard treatment for social anxiety disorder, yet significant improvement is still needed. One promising avenue involves explicitly linking the exposures to a source of motivation. Specifically, personal values represents an intrinsic source of motivation drawn from acceptance and commitment therapy, whereas money represents an extrinsic source of motivation commonly used to motivate behavior change. The current study examined the impact of values-enhanced versus monetary reward-enhanced exposures on social anxiety fear and avoidance outcomes, and directly compared the role of intrinsic and extrinsic rewards in motivating treatment engagement and willingness. Secondarily, the study explored the impact of personal values linked to exposures on exposure learning and generalization from an inhibitory learning framework. Finally, potential mediators and moderators of fear, avoidance, and engagement outcomes were explored. **Methods:** Participants were 60 emerging adults ages 17-26 who self-reported high levels of social and public speaking anxiety. Participants were randomized to one of three conditions: values-enhanced exposure, monetary reward-enhanced exposure, or exposure alone. They completed three sessions: a baseline laboratory session with the condition-specific intervention and public speaking exposure, a laboratory-based follow-up one week later, and an online follow-up two weeks later. Subjective, behavioral, and physiological measures of anxiety were collected. **Results:** Linking exposures to one’s values decreased self-reported anxiety following a speech task, and this anxiety reduction generalized to anticipatory anxiety prior to a novel speech task. Linking exposures to money temporarily
increased speech length, particularly for those who expressed less readiness to change, but this difference did not remain during the novel speech task. Neither positive affect nor spontaneous homework completion mediated this result. **Conclusion:** Extrinsic motivators may be useful to initiate behavior change in individuals who lack internal motivation, while a brief values intervention can be used to enhance exposure learning and subsequently decrease subjective anxiety across feared situations. If replicated, this has important implications for exposure framing and anxiety treatment more broadly. Continued exploration of the role of values in exposure therapy, and the role of motivators in treatment engagement more generally, will be important.
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Introduction

Overview

Exposure-based cognitive behavioral therapy represents the treatment for social anxiety disorder with the strongest evidence base (Heimberg, 2002), yet many people who undergo exposure therapy either fail to complete treatment or do not respond to it (Loerinc et al., 2015). The current study examined whether we can improve exposure outcomes for social anxiety by directly linking exposures to a source of motivation. Specifically, personal values represents an intrinsic source of motivation drawn from acceptance and commitment therapy (Hayes, Strosahl, & Wilson, 1999), whereas money represents an extrinsic source of motivation commonly used to motivate behavior change (Peterman, Read, Wei, & Kendall, 2015; Ryan & Deci, 2000). We examined whether linking these sources of motivation to exposures would decrease fear and avoidance. We also directly compared these intrinsic and extrinsic sources of motivation in supporting exposure treatment engagement and willingness. Secondarily, we explored the impact of personal values on exposure learning and generalization. Finally, possible moderators were tested in order to further our understanding of how to best employ intrinsic and extrinsic motivators in the context of exposure therapy. Our goal was to identify ways to improve exposure therapy learning and treatment engagement for social anxiety among the emerging adulthood population.

Social Anxiety Disorder

Social anxiety disorder (SAD) is a disorder characterized by intense fear and avoidance of social and performance situations (American Psychiatric Association, 2013). Specifically, individuals with SAD fear negative evaluation in such situations, including fear of being humiliated, embarrassed, or rejected. Feared situations can include performing in front of others
(e.g., giving a speech), being observed by others (e.g., eating in front of people), or social interactions more generally (e.g., initiating a conversation at work).

**Fear response.** In these social and public speaking situations, SAD-related fear responses include the subjective fear experience, autonomic activation, and behavioral avoidance (Mauss, Wilhelm, & Gross, 2004). Specifically, individuals with social anxiety subjectively experience high levels of distress and anxiety when in feared situations (Hofmann & DiBartolo, 2000; Levin et al., 1993), and this subjective fear is a key target of behavioral treatments. Fear response also occurs at the physiological level. Threatening situations activate the sympathetic nervous system, which can result in increased heart rate (HR) and galvanic skin response (GSR) activity. Both HR and GSR have been shown to increase during public speaking (Westenberg et al., 2009), and both are commonly used indices of fear in laboratory tasks (e.g., Heeren, Reese, McNally, & Philippot, 2012; Kircanski, Lieberman, & Craske, 2012; Niles, Craske, Lieberman, & Hur, 2015). Finally, avoidance represents a behavioral manifestation of fear that is a key characteristic of anxiety disorders (Craske et al., 2011; Rapee & Heimberg, 1997). Avoidance can result in immediate decreases in subjective and physiological experiences of anxiety, which in turn can reinforce avoidance behavior, ultimately resulting in clinical levels of impairment. Importantly, although each of these areas represent important components of fear responding, studies on emotion have found that subjective, physiological, and behavioral experiences do not always cohere with each other (Mauss, Levenson, McCarter, Wilhelm, & Gross, 2005). Therefore, it is important to measure each of these response systems separately in the context of fear and anxiety.

**SAD prevalence.** SAD represents the second most common anxiety disorder and one of the most common psychological disorders, with an estimated lifetime prevalence rate of 12.1%
in the adult population and 9% in the adolescent population (Kessler et al., 2005), and a 12-month US prevalence rate across all ages of 7% (Kessler et al., 2005). SAD significantly impacts a number of valued life domains, including personal, social, educational, and professional domains (Ruscio et al., 2008; Wittchen, Fuetsch, Sonntag, Müller, & Liebowitz, 2000). Even at the subthreshold level, social anxiety symptoms have a negative impact on functioning (Fehm, Beesdo, Jacobi, & Fiedler, 2008) and on quality of life (Wittchen et al., 2000).

SAD commonly begins in childhood or adolescence (Grant et al., 2005) and is often chronic if left untreated (Bruce et al., 2005). More specifically, the median age of onset is 13 years, with up to 75% of individuals developing SAD between the ages of 8 and 15 (Kessler et al., 2005). The period of time immediately after adolescence, often referred to as emerging adulthood or young adulthood (late teens to mid-20s), represents another elevated risk period for the development of psychiatric disorders, with 22% of emerging adults meeting criteria for an anxiety disorder (Viner & Tanner, 2009). As a result, the emerging adulthood period has been gaining increasing interest more recently (Henin & Berman, 2016). It marks a transition period that usually represents an increase in independence, increased control over peer relationships, and a greater role of romantic relationships in one’s life (Arnett, 2007). Emerging adults have less opportunity to meet and spend time with friends than adolescents, and thus must work harder to create a peer group and to see their friends. In fact, emerging adults spend more of their free time alone than any age group except the elderly (Larson, 1990). For socially anxious emerging adults, this decreased structure in meeting and seeing peers can lead to increased fear and resulting avoidance of social situations. Increased independence can also facilitate an increase in avoidance behaviors as parents are no longer involved in helping to facilitate their children’s day-to-day social, school, and work lives (Rao et al., 2007). In addition, many emerging adults
attend college or begin their first job, both of which can demand increases in public speaking and social interaction with new individuals. More broadly, the transition to college represents a period of heightened psychological vulnerability in which satisfaction with social support plays an important role (Compas, Wagner, Slavin, & Vannatta, 1986). For example, in one study, satisfaction with social support was predictive of general psychological symptoms two weeks after the transition to college (Compas et al., 1986). Therefore, it is especially important to identify and improve SAD treatment during this emerging adult period.

**Evidence-Based Psychological Treatment for SAD**

**Cognitive behavioral therapy.** Exposure-based cognitive behavioral therapy (CBT) represents the psychotherapy approach with the strongest evidence base throughout the lifespan for the treatment of SAD (Connolly & Bernstein, 2007; Albano & Kendall, 2002; Fresco, Erwin, Heimberg, & Turk, 2000; Heimberg, 2002; Rodebaugh, Holaway, & Heimberg, 2004) and anxiety disorders more generally (Arch & Craske, 2009; Butler, Chapman, Forman, & Beck, 2006; Hofmann & Smits, 2008; Kendall, 1994; Tolin, 2010). CBT treatment contains several components, including psychoeducation, skills training, cognitive restructuring, exposure, and relapse prevention (Albano & Kendall, 2002; Heimberg, 2002). However, exposure, which involves the repeated deliberate contact with contexts or situations that reliably induce fear, distress, or avoidance in the context of an anxiety disorder (Moscovitch, Antony, & Swinson, 2009), is considered to be the most potent component (Feske & Chambless, 1995; Heimberg, 2002), with exposure-only treatments consistently performing similarly to exposure therapy plus cognitive therapy (CBT) for SAD (Feske & Chambless, 1995). Therefore, the current study focused specifically on the exposure component of CBT. As part of exposure therapy, clients complete exposures both in-session, led by the therapist, and between-session, as assigned
homework. In SAD, for example, individuals might engage in feared behaviors such as making a speech, asking a stranger for directions, or attending a party, as part of the treatment. Engaging in exposures has been shown to lead to both behavioral change (decreased avoidance) and cognitive change (decreased irrational and maladaptive thoughts) (Feske & Chambless, 1995).

Exposure-based treatment for SAD can be effectively delivered in either individual or group formats (Flannery-Schroeder & Kendall, 2000; Hofmann & Smits, 2008; Manassis et al., 2002; Rodebaugh, et al., 2004; Silverman et al., 1999). Treatment length can vary greatly. One meta-analysis of psychological treatments for SAD (Acarturk, Cuijpers, van Straten, & de Graaf, 2009) evaluated 30 studies ranging from 1 to 20 sessions, with an average of 10 sessions in exposure-based studies (Acarturk et al., 2009). Other treatment protocols can be an average of 12-16 sessions in length (Loerinc et al., 2015; Ponniah & Hollon, 2008). Treatment for SAD has also been effectively delivered in a single prolonged session format (Hindo & Gonzalez-Prendes, 2011; Wells et al., 1996), modeled after the one-session exposure treatments for specific phobias (Zlomke & Davis, 2008).

Despite exposure-based CBT’s strong evidence base, up to 30% of individuals with SAD refuse to begin this treatment (Issakidis & Andrews, 2004), and up to an additional 10-30% of those individuals with anxiety disorders who begin this treatment fail to complete it (Haby et al., 2006; Hamilton, Moore, Crane, & Payne, 2011; Issakidis & Andrews, 2004). Finally, about half of SAD treatment completers (including both intent-to-treat and completer samples) do not show optimal response to CBT (with the vast majority of studies containing an exposure component), as assessed by a reliable change index, clinical cut-off, or clinically significant change (Loerinc et al., 2015).
Emerging adults, in particular, have poor treatment utilization, less motivation to begin treatment, high rates of premature termination, and poor outcomes, with a large drop in mental health utilization occurring during this time period compared to adolescence and adulthood (Pottick, Bilder, Vander Stoep, Warner, & Alvarez, 2008). Emerging adults may be particularly ambivalent about their diagnosis, have limited insight into its impact on functioning, and have a greater desire to solve problems independently (Kessler et al., 2001). Executive functioning deficits and lower levels of conscientiousness compared to adults (Roberts, Walton, & Viechtbauer, 2006), coupled with lack of parental oversight, can lead emerging adults to be particularly vulnerable to decreased therapy attendance and homework completion rates, and poorer treatment engagement and adherence overall (Bergman, Nargiso, & McKowen, 2016), which subsequently affects outcome (Pottick et al., 2008).

**Mindfulness- and acceptance-based treatment.** Despite the significant number of individuals who refuse or do not respond to CBT treatment, the majority of clients prefer psychological treatment to pharmacological treatment (McHugh, Whitton, Peckham, Welge, & Otto, 2013). Thus, it remains vital to improve and expand our psychological treatment options for SAD. As previously noted, emerging adults can be particularly hard to engage in exposure therapy (Oetzel & Scherer, 2003; Pottick et al., 2008), thus representing an especially important population to target in treatment research.

More recently, mindfulness- and acceptance-based approaches for the treatment of SAD have gained empirical support throughout the lifespan (Coyne, McHugh, & Martinez, 2011; Craske et al., 2014; Hancock et al., 2016; Kocovski, Fleming, Hawley, Huta, & Antony, 2013), although no studies have specifically examined the emerging adulthood population. Mindfulness- and acceptance-based approaches have been successfully used to treat anxiety
disorders (Arch et al., 2012), and individual components from these approaches have also been successfully incorporated into traditional exposure therapy to enhance outcomes (e.g., England et al., 2012), suggesting that mindfulness- and acceptance-based approaches may provide an evidence-based alternative to classic CBT.

These treatments involve a greater emphasis on mindfulness, acceptance, and personal values, but often continue to have an exposure-based component (Arch & Craske, 2008). Acceptance and commitment therapy (ACT; Hayes et al., 1999; Hayes, Strosahl, & Wilson, 2012) represents the mindfulness- and acceptance-based approach with the strongest evidence for treating anxiety disorders (Dimidjian et al., 2016; Landy, Schneider, & Arch, 2015; Swain, Hancock, Hainsworth, & Bowman, 2013). ACT is often considered to be a more recent form of CBT with a greater contextual emphasis (Arch & Craske, 2008; Hayes, Levin, Plumb-Vilardaga, Villatte, & Pistorello, 2013). Rather than focusing on the content of thoughts and feelings, ACT instead focuses on the context and function of these psychological events (Hayes, Villatte, Levin, & Hildebrandt, 2011). Through ACT, individuals learn to shift their relationship to difficult thoughts and feelings in order to reduce their control over behavior and to increase psychological flexibility. The ultimate goal of shifting this relationship is to live in a manner that is more aligned with their values (Hayes et al., 1999). In this context, values refer to chosen life directions that serve as guiding principles for how an individual lives one’s life (Hayes, Luoma, Bond, Masuda, & Lillis, 2006). For example, learning, family, and connecting with others represent commonly held values.

Six core therapeutic processes are targeted in ACT (Hayes et al. 2006), each designed to impact the overall goal of increasing psychological flexibility, or the ability to openly and flexibly contact thoughts and feelings and respond in a manner in line with one’s goals and
values (Bond et al., 2011, Hayes et al., 2006). These processes include acceptance (making space for difficult feelings rather than fighting or avoiding them), defusion (creating distance from difficult thoughts so that they have less power), mindfulness (nonjudgmental present-moment awareness), self-as-context (awareness of a transcendent perspective-taking self), values (what one wants to stand for in life), and committed action (committing to take actions aligned with one’s values). These processes have successfully been combined together with exposure therapy for anxiety disorders generally (Arch et al., 2012) and for SAD specifically (Craske et al., 2014). Individual ACT components have also been successfully added to traditional exposure therapy to enhance outcomes (e.g., acceptance plus exposure therapy; England et al., 2012). For example, the acceptance plus exposure therapy study (England et al., 2012), which delivered a 6-session group exposure treatment to 45 adults with public speaking anxiety, found that public speaking exposures conducted from an acceptance-based rationale (i.e., with a focus on acceptance and defusion from distressing thoughts and feelings while engaging in valued public speaking activities) were found to decrease public speaking anxiety relative to a classic habituation-based rationale (i.e., a focus on reducing anxiety through remaining in a feared public speaking situation).

**Personal values.** Personal values comprise a significant component of ACT (Hayes et al., 1999; Hayes et al., 2012). In ACT, values have been formally defined as “freely chosen, verbally constructed consequences of ongoing, dynamic, evolving patterns of activity, which establish predominant reinforcers for that activity that are intrinsic in engagement in the valued behavioral pattern itself” (Wilson & Dufrene, 2009). More simply, values represent what one cares about and wants to stand for in life; values guide who one wants to be and what one wants to do in life. For example, commonly held values include learning, family, love, creativity, respect, health,
independence, productivity, and connecting with others. Importantly, values are distinct from goals in that they cannot ever be fully achieved (i.e., one can achieve the goal of marriage, but cannot “check off” the value of love). In addition, values are broadly held across multiple areas of one’s life (e.g., an individual can value connecting with others both in the context of spending time with friends and while giving a speech to colleagues).

**Linking Exposures to Sources of Motivation**

In addition to expanding treatment options for SAD, improving exposure therapy outcomes can also involve incorporating additional treatment components to augment the existing approaches. Augmentation of exposure-based CBT has been successfully used to impact the treatment’s effectiveness for SAD in a variety of ways (e.g., affect labeling plus exposure, Niles et al., 2015; video feedback plus exposure, Smits, Powers, Buxkamper, & Telch, 2006; acceptance plus exposure, England et al., 2012, Roemer, Orsillo, & Salters-Pedneault, 2008). However, given the importance of improving treatment outcomes for SAD, it remains vital to identify additional novel strategies to augment exposure therapy outcomes.

Linking exposures to a source of motivation represents a promising additional approach to enhancing exposure effectiveness. Exposures require clients to purposefully engage in feared situations that they would normally avoid, and that trigger anxiety and fear, and thus it can be difficult to fully engage clients in exposures or to prevent treatment dropout, particularly at the start of treatment (Issakidis & Andrews, 2004; Slagle & Gray, 2007). Emerging adults are particularly difficult to retain in treatment, with one study finding that emerging adults with a serious psychiatric disorder were 26 times more likely to drop out of any psychological treatment compared to adults (Kessler et al., 2001). In exposure therapy, ‘treatment engagement’ can refer to clients’ attempts to complete exposures (both in-session and at home), remaining in exposures
for the duration of time recommended by the therapist, and completing exposure-based homework assignments outside of therapy sessions. Homework noncompliance has been found to predict treatment nonresponse across anxiety disorders (e.g., Abramowitz, Franklin, Zoellner, & DiBernardo, 2002; Schmidt & Woolaway-Bickel, 2000), including in CBT for SAD (Leung & Heimberg, 1996), emphasizing the importance of treatment engagement. Emerging adults, in particular, may demonstrate increased therapy-interfering behaviors, such as homework noncompliance and frequent missed sessions (Henin & Berman, 2016). Refusal to confront fears by fully engaging in exposures or refusal to complete exposures without safety behaviors (i.e., without actions performed to minimize anxiety or “prevent” a feared outcome) represents other common obstacles (Abramowitz, 2013). Disengagement during exposures (“going through the motions” but not fully engaging in it) is particularly common during SAD exposures (Butler, 1989). For example, socially anxious clients may complete an exposure task requiring them to order food in a restaurant, but they may do so while avoiding eye contact, whispering, and trying to avoid being fully present mentally.

Other SAD clients may report being motivated to complete treatment, but only sporadically complete homework assignments or fail to complete assignments the way they were prescribed. For example, if the assignment was to attend a party, the client might attend a party but leave after 5 minutes rather than stay for the full intended length of time. In order for exposures to be most effective, it is critical to enhance clients’ motivation to remain in treatment and to enhance their willingness to fully engage with and complete the exposures and homework assignments.

Motivational interviewing (MI; Miller & Rollnick, 1991) has been integrated with exposure-based CBT across a variety of anxiety disorders, including SAD, to enhance
willingness to engage in exposure therapy (Randall & McNeil, 2016; Westra, 2004; Westra & Dozois, 2006). A related brief motivational intervention, Motivational Enhancement Therapy (MET), has also been successfully employed in a small sample of emerging adulthood college students with SAD to increase CBT utilization (Buckner & Schmidt, 2009). However, motivational approaches are most commonly employed prior to or at the start of treatment in order to increase motivation and reduce ambivalence to change prior to engaging in treatment (Westra, 2004). Therefore, exploration of approaches to enhance motivation and willingness that can also be incorporated throughout treatment (e.g., approaches that can directly impact specific exposures, in addition to targeting general treatment engagement) are still needed.

**Extrinsic rewards.** Extrinsic rewards represent one possible pathway to enhancing treatment motivation and engagement. Although extrinsic rewards are commonly used to encourage exposure participation, particularly with children (see review of literature below), few studies have directly examined how adding an extrinsic reward to exposure therapy might impact effectiveness, and to our knowledge none have done so with an emerging adult population.

Within the Self-Determination Theory model (Ryan & Deci, 2000), extrinsic motivation specifically refers to activities that are done in order to achieve an outcome separate from inherent enjoyment of the activity. There are several different levels of extrinsic motivation that exist on a continuum (Ryan & Deci, 2000; Ryan & Deci, 2008). *Amotivation* refers to a complete lack of motivation or intention to act. *External regulation* represents the least autonomous level of extrinsic motivation, and refers to doing something in order to obtain a reward or satisfy a demand. Clients who engage in therapy because of tangible rewards or contingency management (tangible reinforcers given for engaging in desired behavior, such as substance abstinence; Petry, Martin, Cooney, & Kranzler, 2000) fall into this category.
Introjected regulation refers to doing something because one feels they “should” do it, doing something to avoid the guilt associated with not doing it, or doing something to obtain social approval. Clients motivated by praise or who complete homework assignments because the therapist tells them to fall into this category, as do those who describe values that they think they should hold, rather than those that they personally align with. Identification refers to doing something because one identifies with the importance behind doing it. Clients who come to therapy because they know that it is beneficial for them would fall into this category. In contrast, the authentic personal values that clients hold are considered to be intrinsically motivating, or inherently motivating from within the individual (Ryan & Deci, 2000). For example, if one values creativity then one will engage in creative activities regardless of external motivators (e.g., painting for enjoyment, regardless of others’ recognition). Finally, integrated regulation is the closest to intrinsic motivation, and refers to doing something because it is in line with one’s values and integrated into oneself. Clients who truly appreciate therapy because of its impact on their life, but who do not necessarily enjoy the sessions or homework assignments, would fall into this category. This level is distinguished from intrinsic motivation because there is still a separate outcome motivating the behavior beyond the inherent enjoyment. Whereas values themselves are intrinsically motivated, it is likely that acting according to one’s values sometimes falls within the integrated regulation category and sometimes within the intrinsic motivation category, depending on whether the valued activity is inherently enjoyable.

Extrinsic rewards, such as stickers, prizes, and “bravery bucks,” are often used with children and adolescent clients to encourage motivation and engagement through external regulation (Beidas, Benjamin, Puleo, Edmunds, & Kendall, 2010; Peterman et al., 2015). Using rewards encourages youth to engage in exposure tasks that they might otherwise avoid, with the
goal of improved treatment response. For example, one study of youth with anxiety found that exposure treatment responders were more likely than nonresponders to be rewarded for their effort in session, and that those who were rewarded were also more likely to be assigned exposure homework (Tiwari, Kendall, Hoff, Harrison, & Fizur, 2013). The goal is to provide an extrinsic reward initially to encourage participation, until the clients begin to see the benefit in challenging themselves in this manner (and thereby move up the extrinsic motivation continuum towards a more autonomous form of motivation; Ryan & Deci, 2000). This is similar to the reward charts commonly used in Parent Management Training (PMT) to encourage completion of chores or other desired behaviors, with the aim that the children will eventually complete these tasks on their own (Kazdin, 2008). Praise can be another powerful reward (used in this context as a positive reinforcer). Rewards are often either something specific that a client works towards (e.g., a desired toy), or “tokens” that can be exchanged for a specific reward (i.e., token economy). Within PMT, token systems are considered a superior system of motivation that can develop behaviors at a higher level than other forms of positive reinforcement, primarily since tokens are explicit, consistent forms of reward that can be easily monitored, whereas other forms of reinforcement, such as praise, are more difficult to track.

Interestingly, one randomized controlled trial of 81 youth with specific phobia, SAD, or agoraphobia (Silverman et al., 1999) compared exposure plus contingency management procedures (i.e., creation of a detailed reward list to reward exposure completions; n = 41) to exposure plus self-control procedures (i.e., addition of cognitive strategies such as cognitive restructuring to exposures; n = 40). The study concluded that both conditions were equally effective across most measures and all informants. The only measure that demonstrated significant difference was the diagnostic interview (the Anxiety Disorders Interview Schedule,
Silverman & Nelles, 1988), with a larger proportion of the children in the self-control condition no longer meeting diagnostic criteria at the end of the study. The authors concluded that the addition of cognitive strategies was comparable to the addition of contingency management procedures in treatment.

In adults, token systems and monetary rewards have been successfully used as part of contingency management therapies (Prendergast, Podus, Finney, Greenwell, & Roll, 2006), which are primarily used to treat substance use disorders (Prendergast et al., 2006). This has been extended down to emerging adulthood, with parents using contingency management to facilitate treatment engagement (Bergman et al., 2016). Substance users often have a particularly high rate of ambivalence towards treatment and thus require more external motivation. Financial incentives have also been successfully used to increase medical compliance (Giuffrida & Torgerson, 1997). Within exposure-based CBT for anxiety disorders, one experiment (Pittig, Brand, Pawlikowski, & Alpers, 2014) used a modified Iowa Gambling Task for spider phobic participants to assess monetary reward as an approach motivator. Participants were presented with four card decks, each linked to short- and long-term monetary gains and losses, and were instructed to select a card across 100 trials with the goal of maximizing their monetary gains. Half of the participants had spider images on the advantageous decks, while the other half had spider images on the disadvantageous decks. The study found that while participants avoided the spider cards overall, they were less avoidant of those spider cards in the more monetarily advantageous decks, suggesting that monetary reward can be used to increase approach towards fears (Pittig et al., 2014). However, an early study examining approach behavior in individuals with snake phobias did not find that monetary reward increased approach (Rimm & Mahoney, 1969). Specifically, they found that neither contingent nor non-contingent monetary reward
increased approach behavior, although modeling did significantly increase approach. Thus, extrinsic rewards have overall been successfully used to enhance psychological treatment and motivate behavior change, although evidence is mixed when directly examining its impact on exposures.

Interestingly, research has shown that providing extrinsic rewards (e.g., paying people) for something that is intrinsically motivating can instead lead to a decrease in motivation, in part because it reduces autonomy and control (Deci, Koestner, & Ryan, 1999). For example, if a teacher assigned a book to a student who enjoyed reading, and offered a tangible reward for completing the book, the student may enjoy the experience less than if they had independently chosen to read it. Choosing to complete an exposure task because one wants to, versus doing so because one is assigned the task, is a very different experience, particularly if the assigned exposure is one that the client might otherwise have independently sought out. Therefore, it may be important to identify initial levels of client motivation prior to deciding whether to employ extrinsic rewards (i.e., external regulation) as motivators. In addition, unless motivation becomes more internalized as a function of engaging in the activity, the motivation provided by extrinsic rewards may not last after the reward has been removed (Dienstbier & Leak, 1976). Specifically, one study found that participants in a weight loss program who were paid money contingent on their weight loss did lose more weight during the program than a control group, but that during the 5-month follow-up they gained weight back while the control group continued to lose weight (Dienstbier & Leak, 1976). Therefore, it may be that both types of rewards are equally motivating for therapy in the short-term, but that differences emerge in the middle- or long-term if the extrinsic reward is removed before the motivation is internalized to some degree.
Although extrinsic rewards are commonly employed to motivate behavior change across a variety of treatments and conditions, including exposure therapy for anxiety, little is known about how a monetary-based extrinsic reward might impact exposure therapy. That is, how does being encouraged to complete an exposure in order to earn a reward impact the effectiveness of the exposure relative to completing an exposure in order to reduce anxiety? Additionally, since the previous studies either examined youth or adults, it is unknown whether money can be successfully used to motivate engagement in an emerging adulthood population.

**Intrinsic motivation.** In contrast, intrinsic motivation refers to motivation that comes from within, or doing an activity for its inherent satisfaction (Ryan & Deci, 2000). Although exposures themselves are not intrinsically motivating, it may be possible to link the exposures to an intrinsic motivator, such as by connecting exposures to the values behind completing them. This could serve to enhance the desire to complete the exposures for oneself, even in the absence of external demands, and to enhance the satisfaction that comes from completing the exposures, both of which are forms of intrinsic motivation.

An intrinsically motivated client is one who engages in therapy because it is important to them, rather than to receive an external reward. Whereas a client who engages in therapy because they want to feel better (e.g., who engages in exposures to reduce anxiety) may be considered to be acting according to identification or integrated regulation, a client who engages in therapy because they enjoy learning about themselves, or a client who truly enjoys the therapy sessions, is considered to be intrinsically motivated (Ryan & Deci, 2008). Intrinsic motivation for a task is often measured using self-report measures or using a “free choice” measure that examines whether someone returns to a task in the absence of reward, approval, or another external reason.
Clients who enter therapy for more intrinsically motivated reasons (as opposed to externally motivated reasons or because they “should” do it) have been shown to be more satisfied with and persist longer in treatment and have more positive treatment outcomes overall, such as lower psychopathology, higher self-esteem, and greater life satisfaction (Michalak, Klappcheck, & Kosfelder, 2004; Pelletier, Tuson, & Haddad, 1997). In addition, students with more intrinsically motivated personal goals were more likely to achieve their goals over the course of a semester and within a 2-week period, with goal achievement contributing to sustained effort towards subsequent goals (Sheldon & Houser-Marko, 2001). Thus, rather than augmenting exposures by linking them to an external source of reward, it may instead be important to link exposures to internal sources of motivation.

**Values as an internal source of motivation.** Personal values, as previously described (see Personal Values), are by definition intrinsically motivating. In contrast, engagement in therapeutic interventions is often not intrinsically motivated, since clients rarely participate in therapy just for the sake of the experience. When included in therapeutic interventions, therefore, values serve to link therapy to sources of more intrinsic motivation with the aim of reinforcing engagement in therapy. It follows that inclusion of a values component in exposure therapy could serve to increase the intrinsic motivation of clients and subsequently to improve treatment motivation and engagement. In fact, one element of motivational interviewing approaches involves highlighting the discrepancy between one’s values and the impact of their symptoms (e.g., “you value freedom, and yet you’re staying home most of the time”) in order to improve treatment motivation, lending support for the use of values discussions to increase treatment motivation (Westra & Dozois, 2006).
Prior to an exposure task, discussing personal values that can be realized by completing the exposure could link the exposure to its real world implications and serve to increase exposure engagement. For example, one could remind clients with SAD or related symptoms that they are engaging in a social conversation exposure because they value connection to others and that completing the exposures will facilitate them connecting more to others. Thus, despite client fear and discomfort, a values intervention could encourage more active participation in the exposure task in session and greater homework engagement at home. In this sense, personal values could activate clients’ sources of intrinsic motivation, which has been positively linked to treatment outcomes in a study that examined goal motivation within a sample of 72 adults seeking treatment for a mood or anxiety disorder (Michalak et al., 2004).

Such a values-based intervention could also increase willingness to experience difficult emotions for a more sustained period of time, which has also been linked to better treatment outcomes (Tobon et al., 2011). Specifically, child involvement in therapy (as coded by raters watching videotapes of treatment sessions) immediately prior to the introduction of exposures predicted better treatment outcomes in a group anxiety treatment. In a values-based intervention, clients may be more likely to stick with a difficult exposure task for an extended period, rather than ending the task earlier, if they are reminded why they care about the task. In fact, several studies examining the ACT-based values component have found increased task engagement despite a lack of distress or symptom reduction (Katz et al., 2016; Ritzert, 2017). For example, participants who identified a “hot cognition” (i.e., negative core belief about oneself, e.g., “I’m not good enough”) engaged in tasks designed to treat that cognition for a longer period of time if they approached treatment from a values promotion framework rather than a symptom reduction perspective, despite equivalent levels of distress in both conditions (Katz et al., 2016). In
addition, a stated goal of ACT is to focus on increasing values-directed behavior rather than symptom elimination (Hayes et al., 1999; Hayes et al., 2012). Therefore, the hypothesis that a values-based intervention could lead to increased task persistence regardless of distress levels is consistent with the overarching goals of ACT-based treatment.

Although little research has explicitly examined the motivating function of values within an exposure context, several studies have examined values-based exposures compared to classic CBT (e.g., Arch et al., 2012; Craske et al., 2014), or have examined the effects of the values component within a broader treatment population or context (i.e., not specifically within an anxiety disorder population or within exposure therapy; e.g., McCracken & Young, 2006; Vowles & McCracken, 2008). For example, an ACT protocol that included values-based exposure tasks had similar outcomes to classic CBT with exposure in a randomized controlled trial of mixed anxiety disorders (Arch et al., 2012) and SAD (Craske et al., 2014). In addition, values represent an important and well-studied component of ACT treatment for chronic pain (e.g., McCracken & Young, 2006). Change in values-based action was associated with pain symptom improvement in a study examining ACT for chronic pain (Vowles & McCracken, 2008). Inclusion of a values component in an ACT-based acceptance intervention led to significantly greater pain tolerance than the acceptance component alone (Branstetter-Rost, Cushing, & Douleh, 2009). One recent treatment component study compared the acceptance and defusion treatment modules to the values and committed action (committing to take actions aligned with one’s values) treatment modules of ACT, and found that the values and committed action modules led to greater improvements in quality of life and values-based activation (Villatte et al., 2016). As noted earlier, another study found that framing a challenging behavioral therapy task from a values promotion perspective, based on the values module of ACT, increased
motivation and engagement in the therapy task relative to framing the task from a symptom reduction perspective (Katz, Catane, & Yovel, 2016). Finally, an additional study found that tapping into participants’ values of helping others by linking a behavioral exposure to charity contributions increased the number of challenging tasks completed without a corresponding change in distress levels (Ritzert, 2017). Together, these studies suggest that focusing on personal values in the context of behavioral therapy enhances motivation and treatment engagement and improves quality of life outcomes, and lend support for exploring values as a form of intrinsic motivation that can be used to enhance exposure outcomes.

**Values affirmation.** It is important to note that values affirmation – a form of self-affirmation – represents a well-established, alternative values-based approach that has been investigated as a stand-alone intervention to promote improved performance and behavior change across a number of arenas in the social psychology literature, as well as in the education, cognitive, and health psychology literatures (e.g., Gregg, Namekata, Louie, & Chancellor-Freeland, 2014; Logel & Cohen, 2012; McCracken & Yang, 2006; Miyake et al., 2010; Steele & Liu, 1983). Specifically, values affirmation involves affirming one’s core values, often through a written exercise that asks participants to identify and write about an important value (McQueen & Klein, 2006). Other commonly employed exercises include ranking values using a checklist, responding to a list of questions, or using visual imagery (McQueen & Klein, 2006). For instance, one exemplar of a values affirmation exercise presents individuals with a list of values (e.g., creativity, community, political views, learning, money, racial identity, honesty, achievement) and asks them to think about times when these values were important and to write about why they are important.
Another example of a values affirmation procedure asks participants to rank values of business, art-music-theater, social life-relationships, science-pursuit of knowledge, religion-morality, and government-politics and then write about their top ranked value (Crocker, Niya, & Mischkowski, 2008; Sherman, Nelson, & Steele, 2000).

More broadly, self-affirmation exercises (i.e., affirmation exercises not limited to values) have also focused on affirmation of positive characteristics or qualities, self-identities (such as “student” or “athlete”), important areas of one’s life (including talents, relationships, hobbies, or values), or achievements (McQueen & Klein, 2006).

Re-affirming one’s core values has been shown to reduce defensiveness (Crocker et al., 2008) and strengthen self-integrity (Sherman & Cohen, 2006) in threatening situations. Importantly, within the values affirmation theory (e.g., Crocker et al., 2008), the affirmed values should be unrelated to the threatening domain (e.g., affirming an unrelated value, such as friends or family, rather than affirming academic ability in the context of academic stress; Sherman & Cohen, 2006; Miyake et al., 2010). Paradoxically, it appears that affirming a value within the threat domain can increase defensiveness and thus increase resistance to behavior change within that domain (Sherman & Cohen, 2006).

A limited number of studies have examined the role of a standalone values affirmation intervention conducted prior to a public speaking task similar to those used in exposure therapy for social anxiety. These studies found that both writing about a meaningful personal value (Creswell et al., 2005) and engaging in an ACT-consistent values clarification intervention (Gregg et al., 2014) reduced neuroendocrine stress reactivity (in the form of salivary cortisol) following a stressful public speaking task. However, a third study that examined the effect of a 20-minute values articulation writing activity that was structured similarly to the values
affirmation approaches, but using more clinically relevant values drawn from ACT, did not find changes in anticipatory anxiety or in anxiety in response to a speech task (Czech, Katz, & Orsillo, 2011). Of note, this study only asked participants to consider one core value, and did not link that value to the subsequent speech task. Together, these studies suggest that values affirmations can be effectively used in stressful situations similar to those encountered in exposure therapy, but that further research is needed to clarify which approaches to highlighting values are most effective.

One key difference between classic social psychology-based values affirmation interventions and the values component of ACT lies in whether the affirmed values are related or unrelated to the threatening domain. While values affirmation interventions generally entail that the values are unrelated to the targeted threatening domain (Sherman & Cohen, 2006), in ACT the values are often explicitly linked to the targeted domain (Villatte et al., 2016). However, values in this ACT context are broadly held across multiple domains, rather than being explicitly tied to a specific area, and are introduced as guiding principles that cannot be failed or achieved (Wilson, Sandoz, Kitchens, & Roberts, 2010). For example, whereas in typical values affirmations one might affirm one’s academic ability by reflecting on accomplishments and why one cares about being smart and successful at school and beyond, in ACT one might focus on the value of working hard, contributing, and learning across all arenas, regardless of success or ability. Therefore, it may not be as threatening to link values to the targeted domains when done in this broader manner. That is, values held broadly across multiple contexts may not seem as threatening as values linked to a specific area. Further, values that reflect broader ideals and processes (e.g., ‘working hard’) rather than self-characteristics that reflect performance success (e.g., ‘being a good student’) may induce less anxiety and defensiveness when evoked in
situations that reflect them. Additionally, while values affirmation exercises often focus on a single value (e.g., writing about the highest ranked value), values discussions in ACT often tie multiple values to each situation (e.g., discussing the values of connection, creativity, and independence in the context of giving a speech). The limited studies exploring values affirmation within clinical contexts (Czech et al., 2011; Creswell et al., 2005; Gregg et al., 2014) have been varied in their approach of how closely to link values to the targeted clinical domain, with mixed results.

In addition, several of the values listed in values affirmation exercises are not commonly discussed values in ACT, such as political views, social or racial identity, achievement in athletics or education, social life, and business. For example, rather than describing political views as a value, in ACT one might describe valuing social justice, integrity, or contributing to community. Rather than valuing athletic achievement, in ACT one might describe valuing strength, fitness, fun, or skillfulness. This definitional difference may also contribute to the divergent results. Specifically, perhaps values such as educational achievement or political views increase threat when linked to a related domain, but values such as connection or spirituality would not invoke the same amount of threat. This study will help clarify whether an ACT-based values approach increases defensiveness and reduces change in the same way that a classic values affirmation exercise might if linked to a related domain, or whether its broader approach to values does not invoke this response.

Comparison of intrinsic and extrinsic motivation. Importantly, values represent an intrinsic motivator, in contrast to the extrinsic motivators often used in behavioral therapy (e.g., earning rewards, Peterman et al., 2015; contingency management therapy, Prendergast et al., 2006). Given that intrinsic and extrinsic rewards have both been effectively employed to promote
behavior change but have not been directly compared in the context of therapy, it remains important to compare how the two forms of reward function as motivators, particularly in an emerging adult population. In addition to examining the impact of these sources of motivation on overall outcomes after exposures (i.e., fear and avoidance retest measures), we also examine how intrinsic and extrinsic rewards directly impact treatment motivation (i.e., exposure engagement, homework completion, hierarchy willingness). It may be that an intrinsic motivator (values) is most effective in those who are already internally motivated to change, while the use of an extrinsic motivator (monetary payment) is most effective in those who are not yet internally motivated. In addition, money may be more important -- and thus more motivating -- to some clients than to others. Relatedly, when examining the role of personal values in exposure therapy, it is important to consider that clients come to therapy with widely varying degrees of knowledge of and clarity about therapy and its alignment with their values. Thus, it is unknown which type of client might find values-based interventions to be more useful – for example, those clients who have “values deficits” (i.e., have difficulty clarifying their values) or those with “values strengths” (i.e., have values clarity, even if they are not fully living by them).

Using Values to Strengthen Learning

In addition to serving as a source of motivation, it is also possible that linking exposures to personal values impacts outcome through another route. Instead, the addition of the values component may serve to deepen learning and broaden generalization of the exposure outside of the therapeutic setting in a manner consistent with an inhibitory learning perspective (Craske et al., 2008; Craske, 2015).

Inhibitory learning. An understanding of the basic science behind the causal and maintenance factors of anxiety disorders can inform approaches to improving treatment.
Although each anxiety disorder is distinct in terms of the content of specific fears and beliefs, the anxiety disorders are linked by common processes, often co-occur with each other, and respond to similar treatment approaches (McManus, Shafran, & Cooper, 2010). Therefore, although the current study focuses on SAD, we will first discuss general learning approaches relevant to all anxiety disorders and then discuss applications to SAD more specifically.

Anxiety disorders are thought to develop, at least in part, through fear conditioning, whereby a neutral stimulus (conditioned stimulus; CS) is paired with an aversive stimulus (unconditioned stimulus; US). Through this CS-US pairing the neutral stimulus elicits a fear response (conditioned response; CR) even without the presence of the aversive stimulus. Exposure therapy aims to inhibit retrieval of this CS-US link through consistent presentation of the CS without the US. Exposure-based CBT was initially conducted from a habituation-based approach based on emotional processing theory (e.g., Foa & Kozak, 1986; Foa & McNally, 1996). Using this approach, clinicians were taught to conduct exposures by first engaging the client in cognitive restructuring techniques, then gradually working up a fear hierarchy, conducting each exposure until anxiety had decreased substantially within session, i.e., until clients had habituated to the exposure (Foa & Kozak, 1986). In this model, exposures were hypothesized to work by helping clients to habituate to their fear within and between exposure sessions, thus learning that fear would eventually decrease if they remained in the feared situation. Specifically, exposures were thought to help clients access and modify their fear memories, weakening and eventually extinguishing the CS-US association.

However, more recent work on the mechanisms of action within exposure-based CBT has led to the development of the inhibitory learning model (Craske et al., 2008). The inhibitory learning model draws on evidence showing that the original CS-US association is not erased.
during exposure therapy, but rather a second CS-US association, that the CS does not predict the US, is learned (Craske, 2015). This second safety-oriented association competes with and, if strong enough, successfully inhibits the original fear-based CS-US association, although the original association can be reactivated. Therefore, rather than focusing on fear reduction within exposure trials, the theory of inhibitory learning emphasizes that it is more important to focus on strengthening the new association by deepening the learning that occurs during exposure trials and increasing the generalizability across diverse contexts in which the CS may be reencountered. This will increase the likelihood that the new, safety-oriented expectancy will be activated in formerly feared contexts, rather than the original fear-based CS-US expectancy. For example, since extinction effects are context specific, conducting exposures in multiple settings will strengthen the new learning more than exposures solely conducted within the therapy room. That is, a new context will be more likely to activate the original fear-based association if the exposures were always done in the same way than if it was conducted across varying contexts.

This newer understanding has led to many small but significant changes to how exposures are conducted in order to improve treatment outcomes. For example, clinicians are taught to maximize expectancy violations (i.e., maximize the mismatch between what clients expect to occur in an exposure and what actually occurs) by refraining from engaging in cognitive restructuring prior to the exposure. This allows the mismatch between what a client thinks will happen and what actually occurs during an exposure to be greater, leading to a greater degree of surprise and more learning. Other strategies thought to improve the learning that occurs within an exposure include deepening extinction by conducting exposures to multiple cues, rather than to one cue at a time, and to conduct exposures to cues that produce variable levels of fear (rather than working linearly up a fear hierarchy), thus creating variability in the
level of fear produced within an exposure. That is, rather than work up from lesser to greater fears, clinicians are encouraged to choose exposures that vary in difficulty. This variability allows for greater surprise and thus greater learning. Increasing positive affect prior to exposures represents another proposed approach to maximizing learning. Greater levels of positive affect can increase positive valence towards the conditioned stimulus, which in turn reduces fear reinstatement (Zbozinek & Craske, 2017). Finally, the importance of conducting exposures across multiple external contexts in order to increase generalizability has also been highlighted (Craske, 2015). Retrieval cues have been used to aid generalization, serving as a bridge linking the learning that occurred in the practiced exposure context to new contexts (Craske et al., 2008; Mystkowski, Craske, Echiverri, & Labus, 2006). For example, being asked to explicitly recall what occurred in the previous exposure task decreased the return of fear that occurred in a new context (Mystkowski et al., 2006).

Values impact on generalizability. Given that values are held across multiple contexts and settings, it is possible that a values-based intervention linked to an exposure could serve to improve learning by enhancing generalizability. That is, linking an exposure done in session to values held across multiple life contexts could serve to increase the generalizability of the exposure to those additional contexts and settings that reflect the specific value. Thus, values could serve as a ‘bridge’ or retrieval cue linking the extinction context to the renewal context (Craske et al., 2008; Mystkowski et al., 2006). For example, if a client reflects on their value of connection immediately before a speech exposure in a therapy session, reflecting on that same value prior to giving a speech in front of a class could serve to link the new context (classroom) to the initial exposure context (therapy room), lessening the chance of fear renewal in the new context.
Linking personal values to exposure could also serve to create a greater number of opportunities for exposure reminders outside of session. That is, every time a client consciously acts according to a value linked to a given behavior, that value could simultaneously serve as a reminder of the exposure done in session and subsequently could remind the client to continue engaging in exposures. For example, if a client values creativity, each time they act creatively they may also think about the exposure session and be more likely to push themselves to approach a feared situation. This would in turn increase the number of contexts in which exposures are engaged in, thus increasing the generalization.

A related possibility is that a values-based intervention could serve to enhance exposures by increasing positive affect prior to and during the exposure. Positive affect before and after exposures recently has been shown to enhance learning by lessening fear reacquisition (Zbozinek & Craske, 2017). Positive affect may serve to improve encoding, rehearsal, and retrieval of learning, as well as to improve relational processing (Clore & Huntsinger, 2007; Zbozinek & Craske, 2017). A values affirmation exercise that directed participants to think about why their top value was important to them increased positive affect, particularly feelings of love, in comparison to a control condition that asked participants to write about why their top value would be meaningful to others (Crocker et al., 2008). This suggests that a values-based intervention can increase positive affect. However, it is also possible that reflecting on one’s values is not a positive experience, particularly if there is a gap between one’s values and how one is living their life. This may be especially true for those with social anxiety, since social anxiety often impedes engagement in valued activities.

Positive affect has also been shown to enhance intrinsic motivation of an enjoyable task, without taking away from time spent on less enjoyable tasks, although it does not appear to
increase enjoyment of less enjoyable tasks (Isen & Reeve, 2005). Therefore, if the values-based intervention does increase positive affect, it may be necessary to attempt to disentangle the relative contributions of enhanced intrinsic motivation and inhibitory learning processes such as enhancing generalizability or increasing positive affect, on exposure outcomes.

**Current Study**

The current study investigated whether explicitly linking behavioral exposure to a source of motivation – either intrinsic or extrinsic – served to enhance exposure effectiveness in an emerging adulthood socially anxious population. Additionally, the study directly compared the role of intrinsic and extrinsic rewards in motivating exposure treatment engagement and willingness. Three conditions were compared during an intervention and exposure session, with in-person and online short-term follow-up sessions: values-enhanced exposure (personal values intervention plus values-framed exposure task), monetary reward-enhanced exposure (monetary reward intervention plus monetary-framed exposure task), and exposure alone (classic exposure therapy introduction plus a classic fear hierarchy-framed exposure task). A secondary aim of the study was to explore the impact of the personal values intervention on exposure generalization and learning from an inhibitory learning perspective. Third, potential moderators of the relationship between the motivation sources and exposure effectiveness were also explored.

Thus, the current study’s aims and hypotheses were as follows:

1a) Aim #1a: Test whether linking exposure to a source of motivation – either intrinsic or extrinsic -- enhances initial exposure effectiveness relative to exposure alone.

We hypothesized that linking exposure to personal values and to monetary reward would reduce fear response at retest and in response to a novel exposure task as measured by self-reported anxiety, physiological arousal including heart rate and skin conductance, and behavioral
approach task (BAT) duration. Although we conceptualize BAT duration here as a behavioral measure of fear, with longer duration suggesting reduced fear and avoidance, BAT duration can also represent increased motivation.

In addition, although we hypothesized that both the values and money conditions would improve BAT duration compared to the control condition, we anticipated that only the values condition would directly reduce fear at both BAT retest and novel BAT. However, it was also possible that the values condition could result in greater task persistence without corresponding change in distress, as has been noted in similar studies (Katz et al., 2016; Ritzert, 2017).

1b) **Aim #1b: Assess whether extrinsic and intrinsic motivators are similarly motivating for improving exposure engagement and willingness.**

Behaving consistently with one’s personal values represents a form of intrinsic reward. Extrinsic rewards (e.g., toys, privileges, “Bravery bucks”) are often used to motivate youth in therapy (Peterman et al., 2015), and some therapies for adult populations also employ monetary rewards (e.g., contingency management therapies, Prendergast et al., 2006), but intrinsic and extrinsic rewards have not been directly compared. Although we hypothesized that intrinsic reward (values) would be more motivating in terms of hierarchy willingness, exposure completion, and homework completion than extrinsic reward (money) in the targeted emerging adult population, it was possible that both types of rewards would be equally motivating in the short-term, and thus differences may not have emerged (e.g., Dienstbier & Leak, 1976), or that money would prove more motivating than values. As noted in Aim #1a, we primarily conceptualized BAT length as a behavioral measure of fear and avoidance; however, BAT length could also reflect increased task persistence and motivation as a result of the intervention, and therefore can also be considered as part of Aim #1b.
We separate Aim #1 into two parts in order to first examine impact of these motivations on overall fear and avoidance outcomes, and to separately examine explicit impact on treatment engagement. Whereas the primary exposure engagement measures occur during the initial intervention and exposure session, outcome measures are captured during the follow-up session. Thus, these aims represent two separate, yet important, ways to measure impact.

It is also possible that one source of motivation (e.g., values) can enhance exposures in a way that is not captured by traditional engagement measures (e.g., by allowing participants to remain more open and engaged during exposures, without changing their observable behavior). Alternatively, it is possible that a source of motivation (e.g., money) can impact engagement without leading to fear and avoidance outcome differences in the short-term (e.g., by increasing homework completion without subsequent fear reduction). Therefore for this reason too, we examine these outcomes separately.

2) Aim #2: Examine inhibitory learning mechanisms through which personal values might enhance exposures.

Based on the above review of the literature on inhibitory learning and motivation, we developed several alternative hypotheses regarding the mechanisms of how personal values might enhance exposure learning.

a) Increased intrinsic motivation and sense of reward could increase positive affect prior to and during the exposure, which has been linked to lower fear reacquisition (Zbozinek & Craske, 2017). Therefore, if initial criteria were met, positive affect would be tested as a potential mediator of the relationship between personal values and outcome.

b) An alternative hypothesis was that personal values would enhance exposure effectiveness by increasing exposure generalizability, given that values can be activated across
multiple contexts, thus deepening and broadening the learning that occurred from the exposure. Despite the benefit of conducting exposures across multiple contexts (Craske et al., 2008; Mystkowski et al., 2006), exposures are typically conducted within very limited contexts (i.e., within-session exposures conducted within the therapy room and between-session exposures conducted in a limited number of situations). By linking values to the exposure, values could either serve as a retrieval cue, linking new contexts to the previously learned context, or values could serve as a reminder to complete exposures across new contexts. Although not directly testable, initial support for this hypothesis would be met if personal values improved both retest and novel BAT outcomes, and if this was not due to increased motivation (as assessed by homework completion) or positive affect.

3) Aim #3: Assess potential moderators of the relationship between the motivation sources and exposure effectiveness.

   a) Values clarity: We assessed whether an added values component was more useful for those with values deficits (compensation hypothesis) or for those with values strengths (capitalization hypothesis). That is, would those who have more or less self-reported values clarity benefit more from the added values component? Given that there is support in the literature for both the compensation hypothesis, that it is best to target deficits in treatment (Niles et al., 2015; Wingate, Van Orden, Joiner Jr., Williams, & David, 2005), and the capitalization hypothesis, that it is better to match strengths in treatment (Cheavens, Strunk, Lazarus, & Goldstein, 2012; Rude & Rehm, 1991), and neither has been tested in the context of personal values, this final aim was exploratory in nature.

   b) Money importance: Similarly, we assessed whether those who viewed money as more important benefited more from the added money component.
c) Initial anxiety: We also tested whether initial levels of anxiety moderated condition effects. It may be that money is only motivating at lower levels of anxiety, and that once anxiety is sufficiently elevated, money no longer motivates engagement, whereas values still resonate.

d) Initial readiness to change: Finally, we tested change readiness as a potential moderator. For example, it might be that those who are not yet ready to tackle their social fears would benefit more from external motivators (i.e., money), whereas those who were already internally motivated to change would benefit more from internal (i.e., values) motivations.
Methods

Participants

Participants were 60 socially anxious emerging adults ages 17-26 from the Boulder, CO area. The 60 participants were randomized across the 3 conditions (n = 20 per condition). Ages ranged from 17-26 (M = 19.37, median = 19). 77% of the sample (46 participants) was female, and the sample was primarily white (72%). Conditions did not differ on any sociodemographic characteristics. However, if the study was more adequately powered, some of the tested sociodemographic differences may have reached significance, particularly for less commonly endorsed variables. See Table 1 for additional sociodemographic information and Power analysis for participant number calculations.

Table 1. Demographic characteristics

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>VALUES</th>
<th>MONEY</th>
<th>CONTROL</th>
<th>TOTAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gender (Female)</td>
<td>85% (17/20)</td>
<td>65% (13/20)</td>
<td>80% (16/20)</td>
<td>77% (46/60)</td>
</tr>
<tr>
<td>Age, in years</td>
<td>19.35 (1.5)</td>
<td>19.30 (1.98)</td>
<td>19.45 (1.90)</td>
<td>19.37 (1.78)</td>
</tr>
<tr>
<td>Student status (Full time)</td>
<td>100% (20/20)</td>
<td>95% (19/20)</td>
<td>100% (20/20)</td>
<td>98% (59/60)</td>
</tr>
<tr>
<td>Grade&lt;sup&gt;a&lt;/sup&gt;</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Freshman</td>
<td>75% (12/16)</td>
<td>62.5% (10/16)</td>
<td>55% (11/20)</td>
<td>63% (33/52)</td>
</tr>
<tr>
<td>Sophomore</td>
<td>0% (0/16)</td>
<td>31.25% (5/16)</td>
<td>30% (6/20)</td>
<td>21% (11/52)</td>
</tr>
<tr>
<td>Junior</td>
<td>6.25% (1/16)</td>
<td>0% (0/16)</td>
<td>10% (2/20)</td>
<td>6% (3/52)</td>
</tr>
<tr>
<td>Senior</td>
<td>18.75% (3/16)</td>
<td>0% (0/16)</td>
<td>0% (0/20)</td>
<td>6% (3/52)</td>
</tr>
<tr>
<td>Other</td>
<td>0% (0/16)</td>
<td>6.25% (1/16)</td>
<td>5% (1/20)</td>
<td>4% (2/52)</td>
</tr>
<tr>
<td>Ethnicity</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>White, Non-Latino</td>
<td>70% (14/20)</td>
<td>75% (15/20)</td>
<td>70% (14/20)</td>
<td>72% (43/60)</td>
</tr>
<tr>
<td>Hispanic/Latino</td>
<td>5% (1/20)</td>
<td>0% (0/20)</td>
<td>10% (2/20)</td>
<td>5% (3/60)</td>
</tr>
<tr>
<td>Race</td>
<td>15% (3/20)</td>
<td>25% (5/20)</td>
<td>10% (2/20)</td>
<td>17% (10/60)</td>
</tr>
<tr>
<td>---------------</td>
<td>------------</td>
<td>------------</td>
<td>------------</td>
<td>------------</td>
</tr>
<tr>
<td>Asian</td>
<td>15% (3/20)</td>
<td>25% (5/20)</td>
<td>10% (2/20)</td>
<td>17% (10/60)</td>
</tr>
<tr>
<td>Black</td>
<td>0% (0/20)</td>
<td>0% (0/20)</td>
<td>0% (0/20)</td>
<td>0% (0/60)</td>
</tr>
<tr>
<td>Native American</td>
<td>0% (0/20)</td>
<td>0% (0/20)</td>
<td>0% (0/20)</td>
<td>0% (0/60)</td>
</tr>
<tr>
<td>Biracial</td>
<td>10% (2/20)</td>
<td>0% (0/20)</td>
<td>5% (1/20)</td>
<td>5% (3/60)</td>
</tr>
<tr>
<td>Other</td>
<td>0% (0/20)</td>
<td>0% (0/20)</td>
<td>5% (1/20)</td>
<td>2% (1/60)</td>
</tr>
<tr>
<td>Employment</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>None</td>
<td>85% (17/20)</td>
<td>55% (11/20)</td>
<td>55% (11/20)</td>
<td>65% (39/60)</td>
</tr>
<tr>
<td>Part-time</td>
<td>15% (3/20)</td>
<td>40% (8/20)</td>
<td>45% (9/20)</td>
<td>33% (20/60)</td>
</tr>
<tr>
<td>Full-time</td>
<td>0% (0/20)</td>
<td>5% (1/20)</td>
<td>0% (0/20)</td>
<td>2% (1/60)</td>
</tr>
<tr>
<td>Religion</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>None</td>
<td>40% (8/20)</td>
<td>60% (12/20)</td>
<td>60% (12/20)</td>
<td>53% (32/60)</td>
</tr>
<tr>
<td>Christian</td>
<td>35% (7/20)</td>
<td>30% (6/20)</td>
<td>35% (7/20)</td>
<td>33% (20/60)</td>
</tr>
<tr>
<td>Jewish</td>
<td>10% (2/20)</td>
<td>5% (1/20)</td>
<td>0% (0/20)</td>
<td>5% (3/60)</td>
</tr>
<tr>
<td>Agnostic</td>
<td>0% (0/20)</td>
<td>5% (1/20)</td>
<td>0% (0/20)</td>
<td>2% (1/60)</td>
</tr>
<tr>
<td>Other</td>
<td>15% (3/20)</td>
<td>0% (0/20)</td>
<td>5% (1/20)</td>
<td>7% (4/60)</td>
</tr>
<tr>
<td>Marital status</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Single</td>
<td>70% (14/20)</td>
<td>55% (11/20)</td>
<td>85% (17/20)</td>
<td>70% (42/60)</td>
</tr>
<tr>
<td>Dating</td>
<td>10% (2/20)</td>
<td>10% (2/20)</td>
<td>5% (1/20)</td>
<td>8% (5/60)</td>
</tr>
<tr>
<td>Partnered</td>
<td>20% (4/20)</td>
<td>30% (6/20)</td>
<td>10% (2/20)</td>
<td>20% (12/60)</td>
</tr>
<tr>
<td>Married</td>
<td>0% (0/20)</td>
<td>5% (1/20)</td>
<td>0% (0/20)</td>
<td>2% (1/60)</td>
</tr>
<tr>
<td>Divorced</td>
<td>0% (0/20)</td>
<td>0% (0/20)</td>
<td>0% (0/20)</td>
<td>0% (0/60)</td>
</tr>
<tr>
<td>Separated</td>
<td>0% (0/20)</td>
<td>0% (0/20)</td>
<td>0% (0/20)</td>
<td>0% (0/60)</td>
</tr>
<tr>
<td>Parental support (Yes)</td>
<td>95% (19/20)</td>
<td>90% (18/20)</td>
<td>95% (19/20)</td>
<td>93% (56/60)</td>
</tr>
<tr>
<td>Parent income</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>&lt;$19,999</td>
<td>5.26% (1/19)</td>
<td>0% (0/18)</td>
<td>0% (0/19)</td>
<td>2% (1/56)</td>
</tr>
<tr>
<td>$20,000-$39,999</td>
<td>5.26% (1/19)</td>
<td>11.11% (2/18)</td>
<td>5.26% (1/19)</td>
<td>7% (4/56)</td>
</tr>
<tr>
<td>$40,000-$59,999</td>
<td>10.53% (2/19)</td>
<td>11.11% (2/18)</td>
<td>0% (0/19)</td>
<td>7% (4/56)</td>
</tr>
<tr>
<td>$60,000-$79,999</td>
<td>10.53% (2/19)</td>
<td>0% (0/18)</td>
<td>31.58% (6/19)</td>
<td>13% (8/56)</td>
</tr>
<tr>
<td>Income Level</td>
<td>Subjective Money Need</td>
<td>$80,000-99,999</td>
<td>$100,000+</td>
<td></td>
</tr>
<tr>
<td>-------------------</td>
<td>-----------------------</td>
<td>----------------</td>
<td>-----------------</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>5.26% (1/19)</td>
<td>63.16% (12/19)</td>
<td></td>
</tr>
<tr>
<td>Subjective money need</td>
<td></td>
<td>11.11% (2/18)</td>
<td>66.67% (12/18)</td>
<td></td>
</tr>
<tr>
<td>Not at all short</td>
<td></td>
<td>2.70 (1.42)</td>
<td>42.11% (8/19)</td>
<td></td>
</tr>
<tr>
<td>Range: 0-5</td>
<td></td>
<td>2.70 (1.28)</td>
<td>2.85 (1.57)</td>
<td></td>
</tr>
<tr>
<td>A little short</td>
<td>21.05% (4/19)</td>
<td>3.20 (1.5)</td>
<td>3.20 (1.28)</td>
<td></td>
</tr>
<tr>
<td>Range: 1-5</td>
<td>2.85 (1.57)</td>
<td>2.85 (1.28)</td>
<td>66.67% (12/18)</td>
<td></td>
</tr>
<tr>
<td>Somewhat short</td>
<td>15% (3/20)</td>
<td>5% (1/20)</td>
<td>10% (2/20)</td>
<td></td>
</tr>
<tr>
<td>Range: 0-5</td>
<td>15% (3/20)</td>
<td>5% (1/20)</td>
<td>15% (9/60)</td>
<td></td>
</tr>
<tr>
<td>Moderately short</td>
<td>20% (4/20)</td>
<td>20% (4/20)</td>
<td>17% (10/60)</td>
<td></td>
</tr>
<tr>
<td>Range: 0-5</td>
<td>20% (4/20)</td>
<td>20% (4/20)</td>
<td>20% (12/60)</td>
<td></td>
</tr>
<tr>
<td>Very short</td>
<td>5% (1/20)</td>
<td>30% (6/20)</td>
<td>30% (6/20)</td>
<td></td>
</tr>
<tr>
<td>Range: 0-5</td>
<td>30% (6/20)</td>
<td>30% (6/20)</td>
<td>22% (13/60)</td>
<td></td>
</tr>
<tr>
<td>Very much short</td>
<td>20% (4/20)</td>
<td>20% (4/20)</td>
<td>20% (12/60)</td>
<td></td>
</tr>
<tr>
<td>Range: 0-5</td>
<td>20% (4/20)</td>
<td>20% (4/20)</td>
<td>18% (11/60)</td>
<td></td>
</tr>
<tr>
<td>Medication (No)</td>
<td>95% (19/20)</td>
<td>100% (20/20)</td>
<td>97% (58/60)</td>
<td></td>
</tr>
</tbody>
</table>

\^a Grade information only collected from those who completed the subject pool screener
\(^b Four participants did not provide parent income information

**Inclusion/exclusion criteria**

Participants were screened using the Social Phobia Inventory (SPIN; Connor et al., 2000), a self-report measure of social anxiety that has demonstrated good diagnostic utility. To be included in the study, participants must have: 1) scored above the cut-off score of 19 on the SPIN at screening, reflecting a clinical level of impairment (Connor et al., 2000), and 2) rated public speaking fear (“acting, performing or giving a talk in front of an audience”) at a moderate or severe fear level on the Liebowitz Social Anxiety Scale (LSAS; Liebowitz, 1987) at screening, since the main behavioral outcome was duration of a public speaking task. Additional inclusion criteria included 3) being 18-26 years of age, in order to capture the beginning of the emerging adulthood period\(^1\), and 4) being able to read, write, and speak English fluently\(^2\).

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\(^1\) One participant reported their age at baseline as 17 despite having previously been screened by the university to ensure age greater than 17; their reported birthdate occurred during their participation in this study

\(^2\) All participants reported English as their first language except for one, who reported being bilingual since childhood
Participants who were currently taking a psychotropic medication at a stable dosage were accepted, but participants were not allowed to take short-acting anti-anxiety medications (e.g., benzodiazepines) on study days and during between-session exposure tasks.

We excluded anyone with 1) current depression, represented by the validated cutoff score for major depression on the Patient Health Questionnaire (PHQ-9; Kroenke, Spitzer, & Williams, 2001) of 10 or greater, excluding the suicidal ideation question, at screening, and 2) potentially problematic marijuana, alcohol, or other substance use, which we defined as alcohol or other substance use four or more times per week, 21 or more drinks per week, four or more binges per week, or self-reported substance use problems (K. Hutchison, personal communication, May 2018). We excluded individuals with depression and more frequent substance use because our intervention examined motivation and learning, and these can impact both (e.g., Ilan, Smith, & Gevins, 2004; Musty & Kaback, 1995). We did not screen for suicidal ideation because we would not have been able to adequately further assess and follow up with individuals who reported any level of ideation. In addition, we used screening questions based off of the Mini-International Neuropsychiatric Interview (MINI; Sheehan et al., 1998) and DSM-5 (American Psychiatric Association, 2013) to exclude individuals with 3) psychosis (“Do you hear or see things that other people do not see or hear?”), and 4) a diagnosis of bipolar disorder (“Have you ever had a period of time lasting for at least four days in a row when you were feeling 'up' or 'high' or ‘hyper’ or so full of energy or full of yourself that you got into trouble, or that other people thought you were not your usual self?” or “Have you ever been diagnosed with bipolar disorder?”), as we were not equipped to treat or accommodate participants with mania or psychotic features. Since we collected data on heart rate and skin conductance, anyone with 5) a cardiovascular, neurological, or respiratory condition was excluded. Finally, we also excluded 6)
anyone who was currently receiving CBT or exposure therapy for social anxiety. See Appendix B for screening questionnaire.

**Recruitment**

Participants were primarily recruited from the University of Colorado Boulder (UCB) psychology research subject pool, with 54 of 60 participants recruited in this manner. Initially, subject pool participants were required to complete a basic screener, which included screening questions from a variety of university research studies (see Inclusion/exclusion criteria above for description of the screening questions included for this study). If they were eligible for the study after completing the basic screener, potential participants were then able to view the study listed along with additional psychology studies (each titled with a number, e.g., Expt. #1573) on the psychology research participation website (see Appendix C for exact study listing); those who were not eligible did not see the study listed. They could then choose to participate in the study for research credit by signing up for an available slot. Study participation fulfilled part of their undergraduate psychology course requirement. Beginning in April 2018, this recruitment method was changed such that all subject pool participants could view the study listed on the psychology research participation website, but prior to signing up they first were directed to complete the screener to determine eligibility, and if eligible, were provided with a sign-up code. This was done in order to reach a larger number of subject pool participants, as not all participants had chosen to take the initial screening survey prior to the beginning of the semester.

The remaining six participants were also recruited from the broader Boulder, CO community beginning March 2018 using a variety of additional methods, including posting flyers and advertising online on Craigslist and Buff Bulletin, CU’s Paid Sona website (see Appendix C). Participants recruited in this manner were directed to a Qualtrics survey that began
with a consent form to screen them and ended with the aforementioned screener. If eligible, they were directed to the Paid Sona website and asked to sign up for an available slot through there.

**Power Analysis**

A power analysis using G*Power 3.1 was computed prior to recruitment to determine the necessary number of participants required for a repeated measures model with within-subject (outcomes across two time points) and between-subject variables (condition). The power analysis indicated that 42 participants in total would be needed to find a medium effect (effect size $f^2 = .25$) at 80% power. Effect size was estimated based on a literature search indicating that a medium effect size is often found when conducting a one-session exposure session with at least one short-term follow-up assessment examining similar outcomes to this study (Kircanski et al., 2012; Niles et al., 2015; Telch, York, Lancaster, & Monfils, 2017), which parallels the current study design. To account for participant dropout and other unanticipated factors, our minimum goal was to include 60 participants in the study, with 20 participants in each condition, but we hoped to randomize 90 participants total. Upon statistical consultation, we subsequently shifted our analytic approach from a repeated measures design to ANCOVAs in order to improve the clarity and ease of interpretation of our results. A post-hoc test showed that we had 66% power to detect an omnibus effect based on our sample size, and we would have needed 93 participants to find a medium effect at 80% power using the current data analytic strategy. However, due to difficulties in recruiting socially anxious participants, who are generally avoidant of many of the tasks required for recruitment to the current study (e.g., contacting and speaking with authority figures and strangers, attending a face-to-face experimental session as opposed to an online-only session, etc.), we were able to meet our minimum target goal of 60 participants.

**Procedures**
**Procedures summary.** Participants were screened for eligibility, and if eligible, they were able to sign up for a time slot and brought in to the laboratory for a one-session exposure session that included self-report measures, a behavioral measure of fear (the behavioral approach task; BAT) and an intervention plus exposure task. See *Figure 1* for an outline of the overall study flow, and *Figures 2-3* for outlines of each session. Prior to the intervention and subsequent exposure task, participants were randomized to one of three conditions: values-enhanced exposure, monetary reward-enhanced exposure, or exposure alone. The exposure alone group represented current practice and served as the control group to allow us to assess whether values or monetary reward had a significant impact on outcome above and beyond the exposure alone. Participants were assessed across two laboratory sessions: a baseline session (“BL”) and a follow-up session scheduled for the same time exactly one week later (“FU1”); they also completed an online questionnaire two weeks following the follow-up session (i.e., three weeks after the intervention; “FU2”). Primary fear outcomes were BAT duration, subjective fear response at retest and in response to a novel speech task as measured by self-reported anxiety, and physiological arousal including heart rate and skin conductance. Primary motivation and willingness outcomes included initial exposure hierarchy willingness, in-session exposure completion, and at-home homework completion.
Figure 1. Study flow

Note. BL = baseline; FU = follow-up
Figure 2. BL session

Note. Physiological data was also captured during BAT and exposures, but this data was not analyzed due to high likelihood of movement artifacts; BL = baseline; SPIN = Social Phobia Inventory; STAI = State Trait Anxiety Inventory-State; PANAS = Positive and Negative Affect Schedule; PHQ-9 = Patient Health Questionnaire-9; BAT = Behavioral approach task; SUDS = Subjective units of distress
Figure 3. FU1 session

Note. Physiological data was also captured during BAT retest and novel BAT, but this data was not analyzed due to high likelihood of movement artifacts; FU = follow-up; SPIN = Social Phobia Inventory; STAI = State Trait Anxiety Inventory-State; PANAS = Positive and Negative Affect Schedule; BAT = Behavioral approach task; SUDS = Subjective units of distress; VIM = Value Importance of Money; CPVI = Chronic Pain Values Inventory; URICA = University of Rhode Island Change Assessment Scale; CMOTS = Client Motivation for Therapy Scale

Screening. On the first page of the basic screener that non-subject pool pre-screened participants were given, participants saw an initial consent form for the screening. Next, participants were presented with the screening questions (outlined above in the Inclusion/exclusion criteria section, and included in Appendix B). Participants were first asked the inclusion criteria questions, then presented with the exclusion criteria questions. If participants did not meet criteria at any point during the question sets, they were directed to a page thanking them and informing them of their ineligibility. If they were deemed eligible, at the end of the Qualtrics questionnaire they were informed of their eligibility and asked to include their contact information to be contacted for scheduling. They were also directed to either the Sona Subject Pool sign-up page or the Paid Sona sign-up page where they could sign up directly using a code.
Pre-baseline questionnaires. Once participants signed up for a study time slot, they were directed to a set of questionnaires to complete at least 24 hours prior to the experimental session (called “pre-baseline” questionnaires for study purposes; see Appendix B). These questions were asked prior to the baseline session rather than with the baseline questionnaires so that they did not influence participants during the baseline session (e.g., so that participants in the money condition were not primed to think about their values in response to the values questionnaire, described below). Participants were sent reminder emails if they had not yet completed the questionnaires the week of the study, and subsequently were reminded two days and one day prior to the study. If participants still did not complete the questionnaires prior to their time slot, they were asked to complete the questionnaires immediately prior to beginning the study; only two participants did not complete the questionnaires prior to the baseline session. The first set of pre-baseline questions asked participants to complete the entire LSAS (Liebowitz, 1987), and then asked them to create a fear hierarchy using the LSAS items (i.e., to rank order the situations from least to greatest fear). Participants also responded to questions about money and values. Additional questions assessed participants’ level of treatment seeking motivation, per the measures described below.

Baseline (BL) session. Participants who completed the pre-baseline questionnaires were invited into the laboratory to complete the study procedures. Upon arrival, participants were first consented for the study. Participants were then asked to wash their hands and were connected to the psychophysiology recording equipment (e.g., electrodes; see Appendix D for placement of electrodes). In order to give the electrodes time to adhere and participants time to adjust to the study setting, they were next asked to complete a baseline questionnaire assessing current social anxiety and affect, as well as general demographic information (see Appendix B). Once that was
completed, baseline physiological data on heart rate and skin conductance were collected for five minutes.

After this, participants completed the baseline behavioral approach task (BAT), in which they were asked to give a speech in front of two judges (one male and one female) who were dressed in business casual clothes and sitting at a panel table in the experimental room, with a small but noticeable camera on the ceiling behind them. Judges were instructed to remain neutral during the speech. Participants were asked to speak for as long as they were willing to, up to five minutes, on one of two randomly assigned personally relevant topics, either “what do you enjoy doing in your free time” or “what is your ideal job and why would you be well suited for it.” Since concern about revealing self-attributes perceived as deficient is a primary feature of SAD (Moscovitch, 2009), we chose topics that required participants to reveal personally relevant information, in order to increase the difficulty of the task and to make it more similar to feared SAD situations. Participants were given three minutes to mentally prepare for the speech and instructed to not write anything down, and physiological data was collected before, during, and after the speech. Length of time participants were able to speak for was recorded as a behavioral measure of baseline social anxiety (behavioral approach tasks or “BAT”; see Measures for additional details).

Participants were also oriented to the subjective units of distress (SUDS) fear rating system at this time, and their pre, peak, post, and recovery anxiety levels about the speech were recorded, per Figure 2. At the end of the speech, participants were instructed to sit quietly for the next few minutes to take a break prior to the next part of the study. Physiological data was recorded during this recovery period and SUDS were collected immediately beforehand (i.e., post task anxiety) and immediately after the two-minute period (i.e., recovery anxiety). Once
they left the room, judges were instructed to independently rate participants on a 0-3 scale to indicate how anxious they appeared, with 0 representing no anxiety and 3 representing high levels of distress evident (see Experimenters for training information).

Next, participants were randomized to one of three conditions: values-enhanced exposure, monetary reward-enhanced exposure, or exposure alone (see Conditions for a detailed description, and Figure 2 for diagram of intervention procedures). Participants completed a worksheet with the experimenter based on their randomization (see Appendix A), which took approximately 15 minutes to complete. Prior to the study, the worksheets for each condition were previously piloted on 12 undergraduate lab members, and feedback received from this pilot was incorporated into the intervention.

Affect was assessed immediately following the intervention using the Positive and Negative Affect Schedule (PANAS; see Measures), in order to measure the effect of each intervention on positive and negative affect. As a measure of willingness, after completing the worksheet all participants were asked to review the hierarchy they created during the pre-baseline questionnaires and to indicate where on the hierarchy they would be willing to begin, if they could begin challenging themselves anywhere on the list (“Hierarchy willingness;” see Measures). They were also asked to rate their SUDS level if they imagined doing this, and to verbally explain their rationale for choosing the task.

Participants were then told that in order to maintain consistency throughout the study all participants would complete the same exposure task, which consisted of five one-minute speeches, each on a different topic (in randomized order), with a one-minute preparation period and 30-second rest period in between each (see Figure 4). Specifically, participants stood once again in front of the judges (who reentered the room) and pulled speech topics out of a bowl that
contained the various speech topics written on folded-up paper. They were then given one minute to mentally prepare to give a speech on that topic (while standing in front of the judges, who averted eye contact at this time), spoke for one minute, and then were given a 30-second break prior to drawing the next topic. Judges were instructed to be more natural when listening to the speeches (in contrast to the BAT, in which they were instructed to remain neutral), in order to differentiate the exposures from the behavioral assessment, and to make it more likely that participants were able to complete exposures. Topics included, “tell a funny story,” “tell an embarrassing story,” “talk about your favorite class,” “describe where you see yourself in five years,” and “speak on any topic.” Immediately prior to the overall exposure task (and prior to the judges entering the room, in order to keep judges blind to condition), participants were reminded of their condition (e.g., “Think about how completing this speech would move you towards your values” for the values condition; “You will be paid $1 for every minute you stick with the exposure, up to $10” for the money condition; “Think of this as practice to help you work towards even more challenging tasks” for the control condition). Prior to and following each speech, participants rated their pre, peak, and post SUDS levels.

Figure 4. *Exposure sets*

![Exposure sets diagram]

*Note.* Each exposure set contains 5 speeches, each with the above order.

Prior to and following the overall exposure set, participants completed a one-minute “think aloud” task (*Figure 2*) in which they were instructed to describe their current thoughts,
including those related to the speech task, and were told that the volume would be turned off during this to help them feel more comfortable expressing themselves. This was done to serve as a qualitative manipulation check of whether participants actively thought about the condition instructions during the exposure task.

Once participants completed their first set of speech exposures, they were given a two-minute recovery period in which their physiological data was captured, and subsequently an additional three-minute recovery period in which they were allowed to move more freely (see Figure 2). That is, although still attached to electrodes, they were informed they could stretch, doodle, or move as needed within the limited space without worrying about remaining as still as possible. This was done to allow their anxiety levels to recover more fully prior to the second set of speeches, thereby following the inhibitory learning recommendation of anxiety variability during exposures, which suggests that greater anxiety variability (including periods of anxiety recovery interspersed with fluctuating levels of anxiety) enhances fear learning (Craske, 2014).

The second set of exposures followed the same format as the first set (i.e., participants drew topics randomly from a bowl, had a one-minute preparation period, and 30-second recovery period; Figure 4), except that speeches were two minutes in length and were on a mix of personal and controversial topics designed to be more revealing and therefore more difficult to respond to. Speech topics were, “describe your family,” “what is your favorite movie and why?” “what are your views on global warming?” “what are your feelings about President Trump?” and “do you consider yourself to be pro-choice or pro-life? Explain.” Once participants completed the second exposure set and recovery period, they were dismissed for the day and reminded to return in exactly one week for the FU1 session. Participants in the money condition were paid for completing the exposures at this time, up to $15 for completing all 15 minutes of exposure.
speeches. Participants were not assigned homework after the initial session in order to assess for the direct impact of the intervention on retest measures, without needing to interpret findings in the context of assigned exposure homework. However, we did assess for spontaneous homework completion during the one-week follow-up period (from BL to FU1), which allowed us to test homework completion as a mediator.

**Conditions.** Participants were randomized to one of three conditions: values-enhanced exposure, monetary reward-enhanced exposure, or exposure alone.

**Values condition.** Participants randomized to the values-enhanced exposure condition completed a worksheet (see Appendix A) designed to explain the concept of values, elicit participants’ own values, help them identify how those values are being negatively impacted by their social anxiety, and help them express how engaging in feared situations (i.e., exposures) will move them closer to their values. In addition to being given an explanation of the concept of values and a list of common values on the worksheet, participants were also given an illustrated handout listing additional values (values cards; Hayes & Ciarrochi, 2015). As part of the worksheet, participants completed a modified version of the Bulls-Eye Values Survey (Lundgren, Luoma, Dahl, Strosahl, & Melin, 2012) to identify how fully they are living by their values in each of four valued domains (education/work, hobbies/relaxation, personal growth/health, and relationships). The experimenter normalized participant responses in order to reduce any potential negative impact of realizing that one was not living life according to one’s values. For example:

It’s great if you feel that you are living according to your values in several areas, and it’s also okay to feel that you’re off the mark in some or all of these domains. Noticing where you stand is an important first step towards living more in line with your values. It is also important to remember that each small step you take towards the center is meaningful, but that living by your values is a process and so big changes won’t happen overnight.
At the end of the worksheet, participants indicated willingness to challenge themselves in the experimental session for the sake of moving towards their values. Prior to exposure sets, participants were told, “While doing this, try to think about the exercise we completed around your values, and how they’re being impacted. Think about how completing these exposure tasks would move you towards your values.”

**Money condition.** Participants randomized to the monetary reward-enhanced exposure condition completed a worksheet (see Appendix A) designed to introduce the concept of using a tangible reward, such as money, to motivate oneself. Participants were given several examples of this, such as earning an allowance for doing chores, and then were asked to describe a time when they’ve used this strategy in the past, what was helpful about it, and whether they could imagine applying this concept to social fears and anxiety. This intervention took less time than the values intervention, since participants did not need to be introduced to the concept of money the way they needed to be introduced to values, and therefore they also completed filler questions related to money so that all conditions were matched in length. At the end of the worksheet, participants indicated willingness to challenge themselves in the experimental session in order to earn money. Prior to exposure sets, participants were told, “In order to reward you for participating in this challenging task, you will be paid $1 for every minute you are willing to stick with the exposure, up to $5 [$10 for the 2-minute set] for completing the entire exposure. Thinking back to the exercise we completed, this will help provide an extra incentive for you to do something that you might not choose to do on your own.” Immediately after completing the exposure sets they were told how much they earned, and they were paid at the end of the baseline session in dollar bills.

**Control condition.** Participants in the exposure-only condition completed a worksheet (see Appendix A) designed to introduce the concept of exposure and the use of hierarchies. This
condition was designed to provide some basic psychoeducation that is communicated prior to exposures in typical classic CBT-style therapy sessions. Participants were given several examples of how to begin with smaller, more manageable situations and work up to more challenging ones, such as starting with lighter weights at the gym to get stronger, and then were asked whether the concept makes sense to them. They completed filler questions about how they learn best in order to match condition time to the other conditions. They then indicated willingness to challenge themselves in the session in order to work towards more challenging situations. Prior to exposure sets, participants were told, “Try to think of this in terms of the exercise we completed, where we talked about practicing smaller tasks in order to work up to more challenging ones. Although this might be challenging for you, think of this as practice to help you work towards even more challenging tasks.”

**One-week follow-up session (FU2).** Exactly one week later during the same time (in order to reduce any time effects on anxiety and physiological responses) participants returned to the laboratory for a second and final in-person session. The initial study procedures were similar to the baseline session. Participants were connected to the psychophysiological equipment, completed a set of questionnaires, and had baseline data captured, prior to being asked to complete a BAT retest (see Figure 3 for FU1 session flow). Specifically, participants were asked to give a speech to the same judges from the previous week on the BAT topic they had not previously been assigned for as long as they were willing to, with length of time recorded as a behavioral outcome measure.

Next, in order to assess for exposure generalization, participants were asked to complete a novel BAT. This time, they were asked to give a wedding toast for as long as they were willing to. Prior to giving the speech, participants were asked to wait in a next-door room, which had a
few National Geographic magazines laid out to look through while waiting. During this time the experimental room was decorated to resemble a wedding, with white table cloth, gold runner, and flowers on the table, silver rose pedals scattered across the floor, fairy lights lining the walls, dimmed lighting, and a large poster of actual wedding guests during a toast hanging on the wall facing the participant (see Appendix D for a photograph of the decorated room). The judges dressed traditionally as a bride (in a wedding dress and shoes) and groom (in a suit), holding champagne glasses, entered the room while discussing the wedding and honeymoon and sat at the table. Participants were also given a champagne glass to hold, on which to make the wedding toast. They were asked to tap on their partially filled (with water) champagne glass to interrupt the judges prior to speaking, introducing further novelty and difficulty. Following the novel speech, participants were given a two-minute recovery period and then asked to complete the one-minute think aloud task (Figure 3). Overhead lights were turned back on and fairy lights turned off, although the remainder of the session took place with the rest of the decorations still present in the room.

Participants next completed a final set of questionnaires relating to values, money, change readiness, and exposure (see Appendix B) to assess for any changes that may have occurred as a function of the intervention. These measures were given at the end of the FU1 session, rather than immediately after the intervention during the baseline session or at the beginning of the FU1 session, in order to prevent any influence on participants during the BATs and to allow for more time for change to occur (e.g., it may take a week of completing condition-linked exposures for change in values clarity to occur).

Finally, participants were assigned exposure homework linked to their condition (see Appendix A). Specifically, participants were guided through a homework worksheet in which
they were asked to come up with 1-2 exposures they would be willing to attempt over the next two weeks, either in order to move towards their values (values condition), in return for a self-provided monetary reward (money condition), or in order to work towards more challenging tasks (control condition). They were taught how to record their exposure tasks (i.e., to write down when they did the exposure, what they did, how long it lasted, and SUDS levels throughout, with values condition also asked to record how valued the exposure was and money condition recording how much they “earned” for completing the exposure). Participants were given the option of recording their exposures on paper and then transferring it to the online version, or recording the relevant information directly into the Qualtrics questionnaire, with sections for up to 12 different exposures (see Appendix B). They were also told that they would be sent an online follow-up questionnaire in two weeks time.

**Online follow-up (FU2).** Two weeks after the FU1 visit, participants were emailed a link to a Qualtrics questionnaire to complete (see Appendix B). The questionnaire asked about social anxiety, exposure completion, treatment motivation, values clarity, and money importance. Participants were sent a $5 gift card to Amazon or Starbucks for completing the questionnaire.

**Experimenters.** Experimenters included the study author and two undergraduate students who were selected for the role and extensively trained. The undergraduate experimenters each spent approximately 3-4 months training prior to running a study session. Training included observing the study, practicing with other RAs and videotaping practice sessions, practicing on the study author, and completing the first few sessions while being observed. Weekly meetings were held with the experimenters throughout the study in order to answer questions and continue training. An experimenter manual detailing the study procedures and script was used in order to ensure consistency across sessions (see Appendix A), and experimenters were trained in
reflective listening skills and provided prompts to common intervention responses in order to standardize the intervention delivery as much as possible.

Judges were 14 different undergraduate RAs, some of whom were involved for the entire study and others who joined later in the year. Judges were pre-assigned to study slot times and paired with another judge of opposite sex. The training process involved meeting with the study author to learn about the role, watching a study session in entirety, and then serving as judge in a session with study author present to provide feedback. Judges were provided with a script (Appendix A) in order to ensure reliability. Observation ratings of the participant’s SUDS needed to match the other judges within one point prior to being allowed to judge. The core set of judges were involved in more extensive training during development of the 0-3 judge SUDS scale (see Appendix D for specific scale with prompts). During this training, judges took turns giving speeches while the remainder of the judges and the study author rated them, with the goal of arriving within one point of each other. Once agreement was achieved, and a set of videos demonstrating a range of ratings was created, these videos were then used to model the “gold standard” rating system that subsequent judges needed to match if they were struggling with the rating system. This training exercise also allowed the study author to identify more objective cues and instructions to give to the judges to ensure reliability. In sessions, judges were instructed to rate the participant independently, but at the end of each session they were instructed to compare ratings with each other and to decide on an overall rating. In this way, judges who were initially more discrepant were able to improve their agreement over time.

Measures

Screening measures.
**Social Phobia Inventory (SPIN; Connor et al., 2000).** The SPIN is a 17-item measure of social anxiety that assesses symptoms of fear, avoidance, and physiological symptoms. Users indicate how much each item has bothered them in the previous week on a scale from 0 (not at all) to 4 (extremely). Sample items include, “I avoid going to parties” and “I am afraid of doing things when people might be watching.” The SPIN has demonstrated good test-retest reliability, internal consistency, and convergent and divergent validity (Antony et al., 2006; Connor et al., 2000). A cutoff of 19 has been used to reliably distinguish between adults with and without SAD (with 79% accuracy; Connor et al., 2000). The SPIN was administered at screening (with a score above 19 needed to be eligible for the study), baseline, FU1, and FU2 as a measure of overall SAD symptoms. Internal consistency at baseline was good (α = .86).

**Liebowitz Social Anxiety Scale (LSAS; Liebowitz, 1987).** The LSAS is a 24-item measure of social anxiety that assesses fear and avoidance across a variety of social situations on a 0-3 scale (from none to severe or never to usually). Sample situations include “speaking up at a meeting” and “telephoning in public.” The LSAS has demonstrated excellent internal consistency, good convergent validity, and sensitivity to treatment effects (Heimberg et al., 1999). A cutoff score of 30 has been used to distinguish between adults with and without SAD with good specificity and sensitivity (Mennin et al., 2002). The LSAS was administered in order to ensure participants have significant public speaking fear and to provide the list of situations used to create the fear hierarchy. Specifically, the LSAS item “acting, performing or giving a talk in front of an audience” was administered at screening (with a fear score of 2 or 3, representing moderate or severe fear, needed to be eligible for the study). In addition, participants were asked to rank order items from the LSAS to create a fear hierarchy at pre-baseline, with the option to
adjust their rankings during the baseline session. The LSAS was re-administered at FU2. Internal consistency at baseline was good for both subscales (α > .82).

**Patient Health Questionnaire-9 (PHQ-9; Kroenke, Spitzer, & Williams, 2001).** The PHQ-9 is a nine-item measure of depression that assesses symptom frequency on a 0-3 scale (from “not at all” to “nearly every day”). Items reflect DSM-IV criteria for depressive disorders. The PHQ-9 has demonstrated excellent criterion, construct, and external validity (Kroenke et al., 2001). A cutoff score of 10 has been used to distinguish between adults with and without major depression with good specificity and sensitivity (Kroenke et al., 2001). The PHQ-9 was administered at screening as a measure of depressive symptoms (excluding the item “thoughts that you would be better off dead or of hurting yourself in some way,” and with a total score below 10 needed to be eligible for the study). It was re-administered at baseline to ensure that level of depressive symptoms was equivalent across treatment conditions; participants were not excluded if their re-administered PHQ-9 was greater than 10. Internal consistency at baseline was acceptable (α = .71).

**Fear outcome measures.**

**Behavioral Approach Task (BAT).** Length of time that participants were willing to speak on an assigned speech topic (up to five minutes) was assessed as a behavioral measure of fear and avoidance (see Baseline session for additional details). BAT length was initially assessed at baseline (“baseline BAT”). Participants repeated the BAT at FU1 using a new topic (“BAT retest”), and were also asked to give a novel speech (a wedding toast, “novel BAT”; see One-week follow-up session for more details) at FU1 in order to assess for generalization to other situations. Wedding toast experience (rated from 0-3, “I have never seen a wedding toast” up to “I have given two or more toasts”) was assessed at FU1 and covaried in novel BAT analyses.
Subjective Units of Distress (SUDS). SUDS are a commonly used method to assess subjective state anxiety during exposure (Wolpe, 1990). Throughout the course of the study, participants were shown a 0-100 point visual Likert scale (from “no anxiety” to “worst anxiety”) and asked to rate their anxiety. Specifically, SUDS were collected to assess anxiety prior to the BATs and exposures (“anticipatory SUDS”), peak anxiety during the BATs and exposures (“peak SUDS”), anxiety immediately following completion of the BATs and exposures (“post SUDS”), and anxiety after a two-minute recovery period following the BATs and exposure sets (“recovery SUDS”).

Psychophysiological assessment. Heart rate and skin conductance was assessed during the experiment as an objective measure of fear arousal. Mindware system hardware and software captured heart rate (HR) using continuous time interval electrocardiogram (ECG) data, and captured electrodermal activity (EDA; the activity of sweat glands on the hand) to measure skin conductance level (SCL) and skin conductance response (SCR). To measure these indicators of autonomic function, seven electrodes were placed on participants, two below the collarbone, one on the abdomen, two on the upper back, and two on the non-dominant hand (see Appendix D for a visual of electrode placement). Data was collected during a five-minute baseline resting period at the beginning of each session and prior to, during, and immediately following the BATs and the exposure task. Although we collected resting baseline information prior to each session, only baseline at the start of the baseline session was used as a covariate in analyses, since it represents the only true baseline period (i.e., participants were likely more anxious at the beginning of the FU1 session, knowing more about what it might entail). The final two minutes of the resting baseline period, final two minutes of the three-minute anticipatory periods, and two minutes during the recovery periods were averaged and used in analyses.
Motivation measures.

**Hierarchy willingness.** In order to assess participant willingness to challenge themselves on a fear hierarchy, participants were shown their self-created hierarchies (using items from the LSAS) after the intervention and asked where on the hierarchy they were willing to start if they could start challenging themselves at any point. Responses were coded 1-24, with 1 representing the most feared situation on the hierarchy and 24 representing the least feared situation.

**In-session exposure completion.** Number of speech exposures completed (out of 10) was assessed as a measure of exposure motivation and willingness. Participants were required to speak for the entire 1- or 2-minute speech period in order to complete that speech exposure.

**Spontaneous between-session exposure completion.** Frequency of exposure completion during the one-week period between laboratory sessions (from BL to FU1) was assessed to measure “spontaneous” (i.e., non-assigned) at-home exposure completion. Participants rated their exposure participation on a 0-4 scale (from not at all to most days per week). Qualitative information on what motivated them (or prevented them) was also captured.

**Assigned exposure homework completion.** Number and frequency of exposure completion between FU1 and FU2 sessions was assessed to capture assigned homework completion as a measure of motivation and engagement. Specifically, participants who completed the online homework questionnaire reported each exposure they completed during the two-week period, up to 12. All participants were also asked about exposure frequency (from 0-5, not at all to most days per week) on the FU2 online questionnaire, and what motivated or prevented them from completing exposures.

**Additional exposure questions.** Participants were also asked about anticipated likelihood and frequency of exposure completion at the end of the FU1 session and again on the FU2
questionnaire. Specifically, participants reported anticipated likelihood of continuing to complete exposures, from 0 (not at all likely) to 5 (extremely likely), as well as how often they will continue to complete exposures (from 0-5, representing not at all to most days per week).

**Process measures.** In addition to assessing homework completion (see above) as a possible mediator, the subsequent measure was also used to assess positive affect as a mediator.

**Positive and Negative Affect Schedule (PANAS; Watson, Clark, & Tellegen, 1988).** The PANAS is a measure of both positive and negative affective states containing 20 affect states (10 positive and 10 negative). Users indicate to what extent each word describes how they feel in that moment from 1 (very slightly or not at all) to 5 (extremely). Sample affect states include “interested,” “irritable,” and “proud.” The PANAS demonstrates good internal consistency, excellent convergent and discriminant validity, and sensitivity to mood fluctuations (Watson et al., 1988). The PANAS was administered at both baselines (i.e., beginning of the BL and FU1 sessions) and immediately following the condition manipulation as a measure of positive (and negative) affect. Internal consistency at baseline was acceptable to good for both subscales (α > .79).

**Moderator measures.**

**Money Importance Scale (MIS; Mitchell, Dakin, Mickel, & Gray, 1998; Mitchell & Mickel, 1999).** The MIS is a scale used to assess behaviors and beliefs indicating the importance of money to individuals. It contains 7 subscales (value importance of money, personal involvement with money, time spent thinking about financial affairs, knowledge of financial affairs, comfort in taking financial risks, skill in handling money, and money as a source of power and status), although we only used the value importance of money subscale (VIM) in this study. Sample items of the VIM subscale include “I value money very highly,” “Money is
important,” and “I daydream about being rich.” The MIS has demonstrated good reliability and construct validity (Mitchell et al., 1998). The VIM subscale was administered at pre-baseline, at the end of FU1, and at FU2 as a measure of money importance. Internal consistency at baseline was good (α = .84).

**Additional money questions.** In addition to the VIM subscale, additional questions related to money were asked at pre-baseline to gather information about participants’ personal financial situation (e.g., “Do you have a job?” “Do you receive monetary support from your parents?” “To what extent do you feel right now that you’re short on money?”). This information was collected to check for baseline differences in money motivation due to relative financial need.

**Values Clarity.** To our knowledge, no questionnaires have been developed to assess for values clarity within an ACT framework. Therefore, we added several questions designed to assess values clarity: “I know what I want to stand for in life,” “I have spent time reflecting on my values,” “I am able to identify my core values.” A question about values importance was also asked: “Living by my values is important to me.” These questions were administered at pre-baseline, at the end of FU1, and at FU2 as a measure of values clarity and importance. Questions were administered at multiple time points to allow for assessment of change over time. Internal consistency at baseline was good (α = .80).

**University of Rhode Island Change Assessment Scale (URICA; (McConnaughy, Prochaska, & Velicer, 1983).** The URICA is a 32-item questionnaire that measures readiness for change. Participants are instructed to rate their level of agreement with each statement on a 5-point scale, from “strongly disagree” to “strongly agree.” Answers map on to four stages of change: precontemplation (no intention to do anything about the problem), contemplation
(thinking about doing something, but ambivalent), action (actively taking steps), and maintenance (relapse prevention), which can then be converted into an overall readiness score. The URICA has good internal consistency and construct validity (McConnaughy et al., 1983). This measure has been successfully used on a sample of anxious undergraduates and a sample of anxious individuals presenting for CBT treatment to predict help-seeking behavior and treatment dropout (Dozois, Westra, Collins, Fung, & Garry, 2004). In that same sample, the URICA inconsistently predicted treatment outcome (Dozois et al., 2004), fitting with other studies in which URICA scores have predicted (e.g., Beitman et al., 1994; Pinto, Pinto, Neziroglu, & Yaryura-Tobias, 2007) and moderated (e.g., Boswell, Sauer-Zavala, Gallagher, Delgado, & Barlow, 2012) anxiety treatment outcome. The URICA was administered at pre-baseline questionnaires so that participants were not influenced during the baseline session as a result of reflecting on their motivation. It was re-administered at the end of the FU1 session and at FU2. Participants were instructed to think of “my problem” in the questions as referring to problems related to social and/or public speaking anxiety (e.g., “It might be worthwhile to work on my problem”). Internal consistency at baseline ranged from acceptable to good ($\alpha$s = .77 - .85).

**Statistical approach**

Linear regression and ANCOVA analyses were conducted using the statistical program R. Paired sample t-tests were also conducted to examine overall outcome differences from BL to FU1, and from BL to FU2. Primary outcome measures assessing fear level are as follows, with all measures assessed at BAT retest and novel BAT unless stated otherwise:

**Self-report outcomes.** We used the SPIN to assess for change in social anxiety symptoms from BL to FU1 and to FU2, although we did not anticipate a significant change in
symptoms to occur after such a short period. We also examined change in self-report SUDS, which we hypothesized might be more sensitive to change.

**Behavioral outcomes.** As a behavioral measure of outcome, we examined duration of BAT in seconds.

**Physiological outcomes.** As a physiological measure of fear response that can sometimes be more sensitive to change than self-report (e.g., Niles et al., 2015), and can provide an additional index of anxiety (e.g., Mauss et al., 2005), we examined change in heart rate and skin conductance.

To model group differences in these continuous outcomes from BL to FU1 measures, and (if applicable) to FU2, we conducted ANCOVAs. Initial levels of the outcome variables were controlled for (e.g., we controlled for baseline BAT length when examining BAT retest length), along with previous wedding toast experience when examining novel BAT outcomes. We tested but found no condition differences in other key variables at randomization (e.g., gender, age, treatment motivation, anxiety), and thus did not control for them. Although there was a significant difference in positive affect at baseline, affect did not predict outcome, and therefore was not controlled for except in the mediator analyses specifically examining positive affect.

Three sets of contrast codes were used in the analyses to code for the categorical variable of condition (Table 2). Contrast codes, rather than dummy codes, were used in order to examine specific planned contrasts. Within these sets, only the comparisons that represented each of the active conditions separately compared to the control condition (VvC and MvC), and active conditions compared to each other (MvV) were examined, as these three comparisons were sufficient to adequately capture the questions of interest.
We tested the four previously proposed study aims in R (version 3.4.1) as follows:

1) **Aim #1a: Test whether linking exposure to a source of motivation – either intrinsic or extrinsic -- enhances initial exposure effectiveness relative to exposure alone.**

To evaluate the main effect of linking personal values or monetary reward to social anxiety exposure tasks, the model examined condition as a predictor of self-reported anxiety (SPIN, SUDS at BAT retest and novel BAT), a behavioral measure of anxiety (BAT retest and novel BAT length), and an objective measure of fear arousal (heart rate, skin conductance). We controlled for initial social anxiety linked to the outcome (i.e., controlled for initial SPIN when examining SPIN, controlled for initial BAT when examining BAT retest). A sample equation is as follows:

\[
\text{bat\_retest\_length} = \beta_0 + \beta_1(\text{bat\_length}) + \beta_2(\text{AvC}) + \beta_3(\text{MvV}) + \epsilon
\]

This demonstrates the equation used to assess whether condition (reflected in the contrast codes comparing active vs. control conditions and money vs. values conditions) predicted BAT retest length, controlling for initial BAT length. Coefficient interpretations would be as follows:

- \(\beta_0\) = predicted value for the average of the categories when \(\text{bat\_length}\) equals zero
- \(\beta_1\) = within-condition estimated slope
- \(\beta_2 = \frac{1}{3}\) of the mean difference between the active and control conditions, over and above any condition differences at baseline (estimated as such due to contrast code values)
\[ \beta_3 = \frac{1}{2} \text{ of the mean difference between the money and the values conditions, over and above any condition differences at baseline (estimated as such due to contrast code values)} \]

**Aim #1b: Assess whether extrinsic and intrinsic motivators are similarly motivating for improving exposure engagement and willingness.**

To evaluate the main effect of linking personal values or monetary reward on motivation and willingness to engage in social anxiety exposure tasks, the model examined condition as a predictor of hierarchy starting place, in-session exposure completion, and at-home exposure completion. A sample equation is as follows:

\[
\text{hierarchy\_start} = \beta_0 + \beta_1(\text{AvC}) + \beta_2(\text{MvV}) + \epsilon
\]

2) **Aim #2: Examine inhibitory learning mechanisms through which personal values might enhance exposures.**

Although there are several possible mechanisms and approaches to examining this question, we focused on one testable and one indirectly testable mediator of the putative relationship between personal values and outcome. Outcome was defined by the primary outcome measures that were significant from Aim #1.

In order to assess positive affect as a potential mediator, we tested the mediation model (Baron & Kenny, 1986; Judd & Kenny, 1981; Frazier, Tix, & Barron, 2004) using the four steps outlined immediately below. The variable of interest at each step is bolded; wedding toast experience is only covaried in novel BAT analyses.

1. **Is there an overall values condition effect on outcome?**

\[
\text{novel\_bat\_anticipatory\_suds} = \beta_0 + \beta_1(\text{AvC}) + \beta_2(\text{MvV}) + \beta_3(\text{bl\_bat\_anticipatory\_suds}) + \beta_4(\text{wedding\_toast\_experience}) + \beta_5(\text{bl\_panas\_positive}) + \epsilon
\]

2. **Does the values intervention increase positive affect?**
panas_positive_post_intervention = β₀ + β₁(AvC) + β₂(MvV) + β₃(bl_panas_positive) + β₄
(wedding_toast_experience) + ε

3. Is positive affect related to outcome, controlling for condition?

novel_bat_anticipatory_suds = β₀ + β₁(panas_positive_post_intervention) + β₂(AvC) + β₃(MvV) +
β₄(bl_anticipatory_suds) + β₅(wedding_toast_experience) + β₆(bl_panas_positive) + ε

4. Is the effect of the values condition on outcome reduced when positive affect is
controlled, compared to its overall effect? (same equation as #3)

novel_bat_anticipatory_suds = β₀ + β₁(panas_positive_post_intervention) + β₂(AvC) + β₃(MvV) +
β₄(bl_anticipatory_suds) + β₅(wedding_toast_experience) + β₆(bl_panas_positive) + ε

We were also interested in whether the values condition directly impacts outcome by
serving as a retrieval cue. This study was not able to directly test this hypothesis. However, if
neither positive affect nor homework completion (assessed similarly to the above equations, but
with spontaneous exposure completion) was found to mediate the relationship between personal
values and outcome, or if they only partially mediated the relationship, this could lend indirect
support for personal values serving as a retrieval cue. Specifically, we would test whether
condition continues to have a significant effect on outcome even after controlling for positive
affect and homework completion, as follows:

novel_bat_anticipatory_suds = β₀ + β₁(AvC) + β₂(MvV) + β₃(bl_anticipatory_suds) +
β₄(wedding_toast_experience) + β₅(spontaneous+exposure_completion) +
β₆(panas_positive_post_intervention) + ε

However, as noted we were unable to directly test whether the values condition served as a
retrieval cue and we were unable to rule out other possible mechanisms, limiting the conclusions
that could be drawn from this.

3) Aim #3: Assess potential moderators of the relationship between the motivation sources and
exposure effectiveness.

We assessed potential moderators of the effect of condition on outcome: values clarity,
money importance, readiness to change, and initial anxiety. We limited outcome to several a
priori variables, including BAT lengths, exposures completed, and anticipatory and post SUDS. The following example equations use BAT retest length as the outcome measure.

   a) Values clarity: To test whether those with more or less values clarity benefited more from the values condition, initial level of values clarity (as assessed by the values clarity questions) was mean-centered and included in the model and examined, as follows (variable of interest in bold):

   \[ \text{bat_retest_length} = \beta_0 + \beta_1(\text{AvC}) + \beta_2(\text{MvV}) + \beta_3(\text{bl_bat_length}) + \beta_4(\text{values_clarity_centered}) + \beta_5(\text{MvV}*\text{values_clarity_centered}) + \epsilon \]

   b) Money importance: In order to test whether initial value importance of money moderated condition effect on outcome, initial money importance (as assessed by the VIM) was mean-centered and included in the model and examined, as follows:

   \[ \text{bat_retest_length} = \beta_0 + \beta_1(\text{AvC}) + \beta_2(\text{MvV}) + \beta_3(\text{bl_bat_length}) + \beta_4(\text{vim_total_centered}) + \beta_5(\text{MvV}*\text{vim_total_centered}) + \epsilon \]

   c) Initial anxiety: In order to test whether initial anxiety level moderated condition effect on outcome, initial social anxiety level (as assessed by the SPIN) was mean-centered and included in the model and examined, as follows:

   \[ \text{bat_retest_length} = \beta_0 + \beta_1(\text{AvC}) + \beta_2(\text{MvV}) + \beta_3(\text{bl_bat_length}) + \beta_4(\text{bl_spin_centered}) + \beta_5(\text{MvV}*\text{bl_spin_centered}) + \epsilon \]

   d) Readiness to change: In order to assess whether initial level of motivation to change moderated condition effect on outcome, initial change readiness (as assessed by the URICA) was mean-centered and included in the model and examined, as follows:

   \[ \text{bat_retest_length} = \beta_0 + \beta_1(\text{AvC}) + \beta_2(\text{MvV}) + \beta_3(\text{bl_bat_length}) + \beta_4(\text{urica_centered}) + \beta_5(\text{MvV}*\text{urica_centered}) + \epsilon \]
Results

Descriptives

There were no baseline condition differences in age, gender, ethnicity, religion, depression, social anxiety, or on any other key variables (\(ps > .05\)); see Tables 1, 3 and 4 for prescreen and baseline information. Though money and values conditions differed in employment (\(p = .03, \eta_p^2 = .08\)), they did not differ in subjective money need (\(p = .92, \eta_p^2 = .00\)). While money and values conditions differed in baseline positive affect (\(p = .04, \eta_p^2 = .07\)), as later noted (see Aim 2) positive affect did not predict any tested outcome measures (\(ps > .09, \eta_p^2 = .04\) - .06), and therefore was not controlled for unless noted otherwise. Baseline negative affect did not differ across conditions (\(p = .44, \eta_p^2 = .01\)). As previously noted, however, the lack of baseline condition differences may have been due, in part, to the study being underpowered, and thus some of the differences may have reached significance with more power.

Table 3. Prescreen inclusion variables, \(n = 60\)

<table>
<thead>
<tr>
<th>Variable</th>
<th>Mean (SD)</th>
</tr>
</thead>
<tbody>
<tr>
<td>PHQ-9</td>
<td>3.69 (2.41)</td>
</tr>
<tr>
<td></td>
<td>Range: 0-9</td>
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<tr>
<td>SPIN</td>
<td>30.25 (8.22)</td>
</tr>
<tr>
<td></td>
<td>Range: 20-55</td>
</tr>
</tbody>
</table>

Note: PHQ-9 = Patient Health Questionnaire-9; SPIN = Social Phobia Inventory
<table>
<thead>
<tr>
<th>Measure</th>
<th>VALUES</th>
<th>MONEY</th>
<th>CONTROL</th>
<th>TOTAL</th>
</tr>
</thead>
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<tr>
<td><strong>ANXIETY</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>LSAS</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>61.15 (19.72)</td>
<td>57.25 (13.44)</td>
<td>58.15 (20.92)</td>
<td>58.85 (18.09)</td>
</tr>
<tr>
<td>Fear</td>
<td>32.00 (9.61)</td>
<td>30.15 (7.41)</td>
<td>30.80 (11.36)</td>
<td>30.98 (9.47)</td>
</tr>
<tr>
<td>Avoidance</td>
<td>29.15 (10.80)</td>
<td>27.10 (6.97)</td>
<td>27.35 (10.57)</td>
<td>27.87 (9.49)</td>
</tr>
<tr>
<td>Speech fear</td>
<td>2.65 (0.49)</td>
<td>2.50 (0.51)</td>
<td>2.50 (0.51)</td>
<td>2.55 (0.50)</td>
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<tr>
<td>Range:</td>
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<td>Range: 2-3</td>
<td>Range: 2-3</td>
</tr>
<tr>
<td>Speech avoidance</td>
<td>2.35 (0.75)</td>
<td>2.35 (0.59)</td>
<td>2.05 (0.76)</td>
<td>2.25 (0.70)</td>
</tr>
<tr>
<td><strong>DEPRESSION</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PHQ-9</td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>4.9 (2.65)</td>
<td>5.0 (3.77)</td>
<td>5.5 (3.61)</td>
<td>5.13 (3.33)</td>
</tr>
<tr>
<td><strong>STATE MEASURES</strong></td>
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<td></td>
<td></td>
<td></td>
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<tr>
<td>PANAS</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Positive affect</td>
<td>30.00 (5.36)</td>
<td>26.10 (6.48)</td>
<td>28.65 (5.46)</td>
<td>28.25 (5.92)</td>
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<tr>
<td>Negative affect</td>
<td>14.40 (2.89)</td>
<td>15.50 (4.19)</td>
<td>16.85 (5.85)</td>
<td>15.58 (4.51)</td>
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<tr>
<td>Range:</td>
<td>10-20</td>
<td>Range: 10-25</td>
<td>Range: 11-31</td>
<td>Range: 10-31</td>
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<td><strong>VALUES</strong></td>
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</tr>
<tr>
<td>Values clarity</td>
<td></td>
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</tr>
<tr>
<td>Total</td>
<td>15.10 (3.42)</td>
<td>14.85 (3.73)</td>
<td>14.45 (3.49)</td>
<td>14.80 (3.50)</td>
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<td>Range: 8-20</td>
<td>Range: 4-20</td>
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<td><strong>VIM</strong></td>
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</tr>
<tr>
<td>Total</td>
<td>11.60 (3.99)</td>
<td>11.40 (3.75)</td>
<td>10.50 (4.22)</td>
<td>11.17 (3.95)</td>
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<td>URICA</td>
<td></td>
<td></td>
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<tr>
<td>Readiness</td>
<td>8.31</td>
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<td>8.60</td>
<td>8.36 (1.69)</td>
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<td>Precontemplation</td>
<td>Contemplation</td>
<td>Action</td>
<td>Maintenance</td>
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<td>------------------</td>
<td>---------------</td>
<td>--------------</td>
<td>---------------</td>
</tr>
<tr>
<td></td>
<td>1.89 (0.52)</td>
<td>3.68 (0.58)</td>
<td>3.49 (0.72)</td>
<td>3.04 (0.72)</td>
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<td>Range: 1.00-3.00</td>
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<td>Range: 2.00-4.57</td>
<td>Range: 1.57-4.29</td>
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<tr>
<td></td>
<td>2.07 (0.56)</td>
<td>3.72 (0.52)</td>
<td>3.58 (0.63)</td>
<td>2.92 (0.67)</td>
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<tr>
<td></td>
<td>Range: 1.43-3.43</td>
<td>Range: 2.71-4.57</td>
<td>Range: 1.29-4.14</td>
<td>Range: 1.43-4.00</td>
</tr>
<tr>
<td></td>
<td>2.06 (0.48)</td>
<td>3.90 (0.39)</td>
<td>3.61 (0.41)</td>
<td>3.15 (0.71)</td>
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<td>Range: 1.00-3.00</td>
<td>Range: 3.14-4.86</td>
<td>Range: 2.86-4.29</td>
<td>Range: 1.86-4.29</td>
</tr>
<tr>
<td></td>
<td>2.01 (0.52)</td>
<td>3.77 (0.50)</td>
<td>3.56 (0.59)</td>
<td>3.04 (0.69)</td>
</tr>
<tr>
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<td>Range: 2.14-4.86</td>
<td>Range: 1.29-4.57</td>
<td>Range: 1.43-4.29</td>
</tr>
</tbody>
</table>

**Note:** Ranges occurred in whole numbers, except for URICA scores. LSAS = Liebowitz Social Anxiety Scale; PHQ-9 = Patient Health Questionnaire-9; PANAS = Positive and Negative Affect Schedule; VIM = Value Importance of Money; URICA = University of Rhode Island Change Assessment Scale

**Aim 1a:** Test whether linking exposure to a source of motivation – either intrinsic or extrinsic – enhances initial exposure effectiveness relative to exposure alone

**Subjective anxiety.** Means and standard deviations for subjective anxiety measures are displayed in *Table 5.*
Table 5. *Means and standard deviations for subjective anxiety measures*

<table>
<thead>
<tr>
<th></th>
<th>VALUES</th>
<th>MONEY</th>
<th>CONTROL</th>
<th>TOTAL</th>
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<tr>
<td>Baseline</td>
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</tr>
<tr>
<td><em>n = 60</em></td>
<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td>Baseline BAT</td>
<td>33.20 (12.48)</td>
<td>34.50 (7.48)</td>
<td>34.20 (11.27)</td>
<td>33.97 (10.46)</td>
</tr>
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<td><em>Range: 12-64</em></td>
<td><em>Range: 20-47</em></td>
<td><em>Range: 16-56</em></td>
<td><em>Range: 12-64</em></td>
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<tr>
<td>1-week follow-up</td>
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<td></td>
</tr>
<tr>
<td><em>n = 56</em></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Baseline BAT</td>
<td>32.56 (12.13)</td>
<td>33.05 (9.22)</td>
<td>31.42 (12.24)</td>
<td>32.34 (11.08)</td>
</tr>
<tr>
<td><em>Range: 12-58</em></td>
<td><em>Range: 17-46</em></td>
<td><em>Range: 13-54</em></td>
<td><em>Range: 12-58</em></td>
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<tr>
<td>Online follow-up</td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Baseline BAT</td>
<td>23.75 (9.79)</td>
<td>28.53 (10.43)</td>
<td>24.41 (12.09)</td>
<td>25.71 (10.82)</td>
</tr>
<tr>
<td><em>Range: 10-43</em></td>
<td><em>Range: 14-52</em></td>
<td><em>Range: 3-46</em></td>
<td><em>Range: 3-52</em></td>
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<tr>
<td><strong>SUDS</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Anticipatory SUDS</td>
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<td></td>
</tr>
<tr>
<td>Baseline BAT</td>
<td>50.35 (18.69)</td>
<td>63.40 (19.78)</td>
<td>55.50 (13.74)</td>
<td>56.42 (18.13)</td>
</tr>
<tr>
<td><em>n = 60</em></td>
<td><em>Range: 15-80</em></td>
<td><em>Range: 0-92</em></td>
<td><em>Range: 27-79</em></td>
<td><em>Range: 0-92</em></td>
</tr>
<tr>
<td>BAT Retest</td>
<td>37.50 (21.85)</td>
<td>50.79 (8.89)</td>
<td>43.11 (19.54)</td>
<td>43.91 (18.12)</td>
</tr>
<tr>
<td><em>n = 56</em></td>
<td><em>Range: 0-71</em></td>
<td><em>Range: 35-64</em></td>
<td><em>Range: 9-74</em></td>
<td><em>Range: 0-74</em></td>
</tr>
<tr>
<td>Novel BAT</td>
<td>42.22 (20.67)</td>
<td>60.21 (14.85)</td>
<td>52.79 (19.78)</td>
<td>51.91 (19.67)</td>
</tr>
<tr>
<td><em>n = 56</em></td>
<td><em>Range: 0-76</em></td>
<td><em>Range: 24-86</em></td>
<td><em>Range: 23-81</em></td>
<td><em>Range: 0-86</em></td>
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<tr>
<td>Peak SUDS</td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Baseline BAT</td>
<td>69.85 (16.62)</td>
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<td>74.25 (14.21)</td>
<td>72.73 (15.49)</td>
</tr>
<tr>
<td><em>n = 60</em></td>
<td><em>Range: 21-95</em></td>
<td><em>Range: 30-97</em></td>
<td><em>Range: 42-96</em></td>
<td><em>Range: 21-97</em></td>
</tr>
<tr>
<td>BAT Retest</td>
<td>47.61 (23.50)</td>
<td>56.53 (13.49)</td>
<td>55.63 (19.64)</td>
<td>53.36 (19.30)</td>
</tr>
<tr>
<td><em>n = 56</em></td>
<td><em>Range: 9-80</em></td>
<td><em>Range: 21-81</em></td>
<td><em>Range: 25-95</em></td>
<td><em>Range: 9-95</em></td>
</tr>
<tr>
<td>Novel BAT</td>
<td>54.56 (20.08)</td>
<td>62.74 (23.55)</td>
<td>59.05 (22.65)</td>
<td>58.86 (22.03)</td>
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<tr>
<td><em>n = 56</em></td>
<td><em>Range: 9-84</em></td>
<td><em>Range: 10-97</em></td>
<td><em>Range: 20-99</em></td>
<td><em>Range: 9-99</em></td>
</tr>
<tr>
<td>Post SUDS</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Baseline BAT</td>
<td>61.70 (21.04)</td>
<td>56.65 (21.82)</td>
<td>55.45 (18.02)</td>
<td>57.93 (20.20)</td>
</tr>
<tr>
<td><em>n = 60</em></td>
<td><em>Range: 12-91</em></td>
<td><em>Range: 19-100</em></td>
<td><em>Range: 16-80</em></td>
<td><em>Range: 12-100</em></td>
</tr>
<tr>
<td>BAT Retest</td>
<td>39.33 (20.46)</td>
<td>46.95 (15.32)</td>
<td>41.63 (20.24)</td>
<td>42.70 (18.72)</td>
</tr>
<tr>
<td><em>n = 56</em></td>
<td><em>Range: 9-76</em></td>
<td><em>Range: 15-74</em></td>
<td><em>Range: 10-89</em></td>
<td><em>Range: 9-89</em></td>
</tr>
<tr>
<td>Novel BAT</td>
<td>46.50 (20.23)</td>
<td>54.32 (21.49)</td>
<td>45.11 (25.35)</td>
<td>48.68 (22.47)</td>
</tr>
<tr>
<td><em>n = 56</em></td>
<td><em>Range: 0-74</em></td>
<td><em>Range: 0-85</em></td>
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<td><em>Range: 0-98</em></td>
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<tr>
<td>Recovery SUDS</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Baseline BAT</td>
<td>30.00 (19.14)</td>
<td>35.45 (20.64)</td>
<td>27.55 (14.80)</td>
<td>31.00 (18.35)</td>
</tr>
<tr>
<td><em>n = 60</em></td>
<td><em>Range: 0-76</em></td>
<td><em>Range: 7-85</em></td>
<td><em>Range: 0-60</em></td>
<td><em>Range: 0-85</em></td>
</tr>
</tbody>
</table>
**Note:** SPIN = Social Phobia Inventory; SUDS = Subjective Units of Distress

**SPIN.** SPIN scores significantly decreased from baseline to FU1 ($p = .002$, $d = .43$) and from FU1 to FU2 two weeks later ($p < .001$, $d = .85$), with an approximately 8 point drop in scores over the course of the study (see Table 5), representing a large effect ($d = 1.07$) that we did not expect to find. However, as anticipated, no condition difference in SPIN scores emerged at any time point ($ps > .18$, $\eta^2_p = .00 - .04$; see Figure 5), suggesting that all conditions decreased social anxiety symptoms to a similar degree.

Figure 5. SPIN scores

---

<table>
<thead>
<tr>
<th>BAT Retest</th>
<th>Range: 0-65</th>
<th>Range: 8-61</th>
<th>Range: 2-63</th>
<th>Range: 0-65</th>
</tr>
</thead>
<tbody>
<tr>
<td>$n = 56$</td>
<td>28.39 (20.90)</td>
<td>34.05 (15.64)</td>
<td>28.42 (18.20)</td>
<td>30.32 (18.19)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Novel BAT</th>
<th>Range: 0-60</th>
<th>Range: 4-62</th>
<th>Range: 2-79</th>
<th>Range: 0-79</th>
</tr>
</thead>
<tbody>
<tr>
<td>$n = 56$</td>
<td>31.56 (18.15)</td>
<td>41.63 (17.07)</td>
<td>34.63 (21.09)</td>
<td>36.02 (19.00)</td>
</tr>
</tbody>
</table>

Note: SPIN = Social Phobia Inventory; BL = Baseline; FU = Follow-up

**SUDS.** Graphical representations of reported SUDS analyses are displayed in Figures 6 – 11. Figures 6-7 demonstrate the overall SUDS pattern, showing that SUDS were highest at BL
BAT and lowest at BAT retest across conditions, as expected. Figures 8-9 show the overall pattern specifically for anticipatory and post speech SUDS, with significant condition differences noted, showing less novel BAT anticipatory anxiety and less post-BAT retest anxiety in the values condition compared to the money condition.

Figure 6. *SUDS scores for BL BAT compared to BAT retest*

![Graph showing SUDS scores for BL BAT compared to BAT retest](image)

*Note: SUDS = Subjective units of distress; BAT = Behavioral approach task; BL = Baseline*

Figure 7. *SUDS scores for BL BAT compared to novel BAT*

![Graph showing SUDS scores for BL BAT compared to novel BAT](image)

*Note: SUDS = Subjective units of distress; BAT = Behavioral approach task; BL = Baseline*
Anticipatory anxiety. Overall, anticipatory anxiety was significantly lower at BAT retest than BL BAT ($p < .001, d = .68$), as expected, with average SUDS level declining 12.51 points from baseline to retest (see Table 5 for all SUDS ratings). However, anticipatory SUDS level
prior to the novel BAT did not differ significantly from BL BAT \((p = .14, d = .20)\), suggesting that the novel BAT was sufficiently different from the BL BAT and BAT retest.

In contrast to our hypothesis, condition did not predict anticipatory anxiety prior to BAT retest \((ps > .14, \eta_p^2 = .01 - .04)\), although the values condition showed a general pattern of less anticipatory anxiety than the other two conditions. However, the conditions differed significantly in novel BAT anticipatory anxiety; specifically, the values condition reported less anticipatory anxiety than the money condition \((p = .02, \eta_p^2 = .09; Figure 10)\), supporting our hypothesis, and suggesting that the values condition felt less anxious than the money condition prior to the novel BAT “wedding toast.” However, neither the values nor the money condition differed significantly from the control condition \((ps > .15, \eta_p^2 = .02 - .04)\).

Figure 10. *Anticipatory SUDS across time points*

![Graph showing anticipatory SUDS across time points](image)

*Note: SUDS = Subjective units of distress; BAT = Behavioral approach task; BL = Baseline*

*Peak anxiety.* Peak anxiety was significantly lower during the BAT retest and novel BAT than during BL BAT, as expected \((ps < .001, ds = .63 - 1.10)\).
Condition did not predict peak anxiety at BAT retest ($ps > .21, \eta_p^2 = .00 - .03$) or at novel BAT ($ps > .39, \eta_p^2 = .00 - .01$), suggesting that all conditions reached similar levels of anxiety during the speech itself.

**Post anxiety.** Post-BAT anxiety significantly decreased from BL BAT to BAT retest ($p < .001, d = .77$) and to the novel BAT ($p = .004, d = .40$).

When examining condition differences, the values condition reported significantly less self-report anxiety immediately following the BAT retest than the money condition ($p = .03, \eta_p^2 = .09$; *Figure 11*), supporting our hypothesis. This held even when controlling for differences in BAT retest length ($p = .04, \eta_p^2 = .06$), suggesting that the lower anxiety levels were not attributable to the fact that the values condition spoke for less time than the money condition. However, neither the values nor the money condition differed significantly from the control condition ($ps > .22, \eta_p^2 = .02 - .03$). Additionally, on post-novel BAT SUDS, the values condition trended towards reporting less anxiety compared to the money condition ($p = .09, \eta_p^2 = .06; p = .06, \eta_p^2 = .06$ without controlling for wedding toast experience; *Figure 11*), suggesting that across both tasks the values condition tended to experience less anxiety immediately after completing the speech than the money condition. Again, neither the values nor the money condition differed significantly from the control condition ($ps > .21, \eta_p^2 = .01 - .03$).
Figure 11. Post SUDS across time points

Note: SUDS = Subjective units of distress; BAT = Behavioral approach task; BL = Baseline

**Recovery anxiety.** Although recovery anxiety levels did not differ significantly from BL BAT to BAT retest ($p = .84$, $d = .03$), anxiety level was significantly higher after recovery from the novel BAT ($p = .01$, $d = .35$), suggesting that the novel BAT evoked more prolonged anxiety.

After the two-minute recovery period, none of the post-BAT condition differences in self-reported anxiety levels remained for the BAT retest ($ps > .49$, $\eta_p^2 = .00 - .01$) or novel BAT ($ps > .23$, $\eta_p^2 = .00 - .03$), indicating that regardless of post-BAT anxiety, all conditions recovered similarly within two minutes.

**Physiological anxiety.** Means and standard deviations for physiological anxiety measures are displayed in *Table 6.*
Table 6. Means and standard deviations for physiological anxiety measures

<table>
<thead>
<tr>
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<td>82.14 (11.54)</td>
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<tr>
<td>Range: 66.05-119.88</td>
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<td>Range: 58.69-100.92</td>
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<td>91.33 (17.06)</td>
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<td>Range: 74.56-118.14</td>
<td>Range: 72.76-134.03</td>
<td>Range: 66.35-134.03</td>
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<td>90.71 (14.14)</td>
<td>89.79 (15.82)</td>
</tr>
<tr>
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<td>Range: 74.49-126.08</td>
<td>Range: 55.26-119.88</td>
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<td>10.13 (4.97)</td>
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</tr>
<tr>
<td>48</td>
<td>10.76 (5.48)</td>
<td>9.15 (5.86)</td>
<td>9.13 (3.54)</td>
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<tr>
<td>48</td>
<td>11.55 (5.62)</td>
<td>9.55 (5.38)</td>
<td>10.20 (4.37)</td>
</tr>
</tbody>
</table>

**Note:** SCR data should be interpreted with caution; BAT = Behavioral approach task; HR = Heart rate; SCL = Skin conductance level; SCR = Skin conductance response

Heart rate. Contrary to what we expected, anticipatory heart rate (HR) did not significantly change from BL BAT to BAT retest ($p = .94$, $d = .01$) or to novel BAT ($p = .71$, $d = .05$). Similarly, recovery HR did not significantly change from BAT to BAT retest ($p = .24$, $d = .17$) or to novel BAT ($p = .69$, $d = .06$). As expected, average HR was significantly higher during
the anticipatory period than during the recovery period across all BATs \( (ps < .001, ds = .62 - .84) \).

Condition did not predict anticipatory HR prior to the BAT retest \( (ps > .70, \eta^2_p = .00) \) or novel BAT \( (ps > .49, \eta^2_p = .00 - .01) \), nor did it predict HR during a two-minute recovery period after either follow-up BAT \( (ps > .76, \eta^2_p = .00) \). Therefore, contrary to our hypothesis, condition did not impact anticipatory HR.

**Skin conductance.** Skin conductance data should be interpreted with caution, as there was a greater than expected number of skin conductance responses (SCRs) captured during the study. For example, although we would expect a range from 1-3 SCRs (maximum 10 SCRs) per minute during rest (Braithwaite, Watson, Jones, & Rowe, 2013), with up to 10% of individuals not displaying any SCRs, our study captured an average of 5.33 responses per minute (range = 0.5 - 11.5) at BL, and an average of 11.49 responses in anticipation of the BL BAT (see Table 6). Although participants were likely not completely relaxed during BL, and thus they could have been experiencing a higher number of SCRs, a similar study (Niles et al., 2015) found a much lower average of 0.5 responses at BL and 2.3 responses in anticipation of a similar public speaking exposure. In contrast, our average skin conductance levels (SCLs; see Table 6) do fall within the expected range of 1 - 40 µs (most commonly from 2 - 16 µs; Braithwaite et al., 2013).

Thus, results are reported here in order to be comprehensive, and because the general pattern of the data collected is as expected (i.e., higher skin conductance during speech tasks than during baseline or recovery periods, average SCLs within the expected range), despite the unusually high number of SCRs.

Anticipatory SCL did not significantly change from BL BAT to BAT retest \( (p = .34, d = .14) \) or to novel BAT \( (p = .29, d = .16) \). However, as expected, more SCRs occurred prior to the
BL BAT than prior to either of the follow-up BATs ($ps < .001, ds = .85 - .90$). Contrary to what we anticipated, recovery SCL did not change from BL BAT to BAT retest ($p = .28, d = .16$) or to novel BAT ($p = .10, d = .25$). Similarly, number of SCRs did not differ after any BAT ($ps > .17, ds = .15 - .21$).

As expected, the average number of SCRs was significantly higher during the anticipatory period than the recovery period across all BATs ($ps < .001, ds = .55 - 1.45$), indicating that overall participants experienced more physiological anxiety prior to than following the speeches. Interestingly, while average SCL was higher during the anticipatory period than during the recovery period at the BL BAT ($p = .001, d = .49$), SCL did not differ significantly when comparing anticipatory and recovery periods at BAT retest or novel BAT ($ps > .08, ds = .16 - .26$), suggesting that overall level of skin conductance did not decrease immediately following the follow-up BATs, as had occurred after the BL BAT.

Condition did not predict anticipatory SCL ($ps > .21, \eta^2_p = .01 - .04$) or SCR prior to BAT retest ($ps > .24, \eta^2_p = .00 - .04$), nor did it predict SCL ($ps > .09, \eta^2_p = .00 - .07$) or SCR ($ps > .37, \eta^2_p = .00 - .02$) prior to the novel BAT. Similarly, condition did not predict SCL or SCR during a two-minute recovery period following the BAT retest ($ps > .19, \eta^2_p = .00 - .05$ for SCL, $ps > .23, \eta^2_p = .01 - .04$ for SCR) or novel BAT ($ps > .13, \eta^2_p = .01 - .06$ for SCL, $ps > .64, \eta^2_p = .00 - .01$ for SCR).

Overall, our hypothesis that condition would impact physiological anxiety was not supported, as condition did not predict any physiological measures at any point in the study.

**Behavioral anxiety.** Means and standard deviations for behavioral anxiety measures are displayed in *Table 7*. 
Table 7. Means and standard deviations for behavioral anxiety measures

<table>
<thead>
<tr>
<th></th>
<th>VALUES</th>
<th>MONEY</th>
<th>CONTROL</th>
<th>TOTAL</th>
</tr>
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<td><strong>BAT LENGTH</strong></td>
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</tr>
<tr>
<td>Baseline BAT</td>
<td>81.10 (35.32)</td>
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<td>103.45 (72.28)</td>
<td>92.18 (55.55)</td>
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<td>Range: 24-245</td>
<td>Range: 28-300</td>
<td>Range: 24-300</td>
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<tr>
<td>BAT retest</td>
<td>89.94 (65.72)</td>
<td>135.32 (78.07)</td>
<td>97.32 (58.89)</td>
<td>107.84 (69.78)</td>
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<tr>
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<td>Range: 42-300</td>
<td>Range: 45-300</td>
<td>Range: 23-300</td>
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<tr>
<td>Novel BAT</td>
<td>81.50 (67.92)</td>
<td>104.58 (58.88)</td>
<td>103.68 (50.16)</td>
<td>96.86 (59.14)</td>
</tr>
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<td>n = 56</td>
<td>Range: 30-300</td>
<td>Range: 39-300</td>
<td>Range: 41-264</td>
<td>Range: 30-300</td>
</tr>
</tbody>
</table>

Note: BAT = Behavioral approach task

**BAT.** BAT speech length trended towards increasing from BL BAT to BAT retest \((p = .07, d = .25)\). However, length did not differ when comparing BAT retest to novel BAT \((p = .15, d = .19)\), or when comparing BL BAT to novel BAT \((p = .62, d = .07)\), suggesting that although participants were able to speak slightly longer when they repeated the speech task, this increase was not maintained during a novel speech task.

Condition predicted BAT retest length in partial support of our hypothesis (see Figure 12), such that at retest the money condition spoke significantly longer than the control condition \((p = .02, \eta^2_p = .10)\) and trended towards speaking longer than the values condition \((p = .06, \eta^2_p = .07)\). However, the money condition did not speak significantly longer than the values or control conditions during the subsequent novel BAT task \((ps > .16, \eta^2_p = .01 - .04)\), indicating that the improvement in BAT duration did not remain during the subsequent novel task. The values and control conditions did not differ in speaking length at either BAT retest \((p = .67, \eta^2_p = .00)\) or novel BAT \((p = .59, \eta^2_p = .01)\).
Figure 12. BAT length across time points

Note: BAT = Behavioral approach task; BL = Baseline

Aim 1b: Assess whether extrinsic and intrinsic motivators are similarly motivating for improving exposure engagement and willingness

Means and standard deviations for motivation outcomes are displayed in Table 8 (hierarchy willingness) and Table 9 (homework exposure completion).
Table 8. Means and standard deviations for hierarchy measures

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<tr>
<th>VALUES</th>
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</tr>
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<tr>
<td>$n = 59$</td>
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<tr>
<td>8.95 (4.37)</td>
<td>5.95 (4.42)</td>
<td>7.39 (5.47)</td>
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</tbody>
</table>

<sup>a</sup>Higher numbers represent easier situations

Note: SUDS = Subjective Units of Distress

Table 9. Means and standard deviations for exposure measures

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<tr>
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<tr>
<td>4.46 (2.60)</td>
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<td>4.41 (2.83)</td>
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</tbody>
</table>
**Hierarchy willingness.** In contrast to our hypothesis, the money condition trended towards being willing to start higher on their hierarchy (i.e., start with a more feared situation) than the values condition ($p = .05, \eta_p^2 = .07$; *Figure 13*). However, neither the money and control conditions ($p = .36, \eta_p^2 = .02$), nor the values and control conditions ($p = .32, \eta_p^2 = .02$), differed significantly in hierarchy start. Relatedly, when thinking about starting at the chosen hierarchy spot, the money condition reported significantly more fear (as assessed by SUDS) than the values condition ($p = .01, \eta_p^2 = .12$), and trended towards greater fear than the control condition ($p = .08, \eta_p^2 = .05$; *Figure 14*); values and control conditions did not differ ($p = .32, \eta_p^2 = .02$). This suggests that the money condition reported greater willingness to confront a more feared situation, despite anticipating that they would experience more anxiety as a result.

*Figure 13. Hierarchy start willingness*

![Hierarchy willingness chart](image)

*Note. Hierarchy start was reverse-coded to improve clarity, and therefore higher numbers represent harder situations*
In-session exposure completion. Of those who completed the in-session exposure intervention, all participants spoke for the entire time for each 1- and 2-minute speech, and therefore exposure completion did not differ by condition. Of note, one participant in the values condition was initially reluctant to complete the exposures, but once she began she was able to complete the entire set, and a second participant in the values condition did not agree to proceed with the study after completing the intervention (i.e., after completing the values worksheet).

Homework exposure completion. Thirty-five of the 56 returning participants reported “spontaneously” completing at least one exposure during the week period between BL and FU1 (that is, completing an exposure without being explicitly assigned to do so). However, of those who reported completing any exposures, condition did not predict frequency of exposures (on a scale ranging from once to most days per week; $ps > .52, \eta^2_p = .00 - .01$).

Although the values condition trended towards anticipating greater likelihood of completing assigned exposures than the money condition during the subsequent two-week
follow-up period from FU1 to FU2 ($ps > .09, \eta^2_p = .01 - .05$; Figure 15), in contrast to our hypothesis condition did not predict actual frequency ($ps > .51, \eta^2_p = .00 - .01$) or number of exposures reported at FU2 ($ps > .12, \eta^2_p = .01 - .07$), nor did it predict level of exposure challenge during this time period ($ps > .28, \eta^2_p = .00 - .03$). Of those who did complete exposures during this period, participants completed an average of 4.41 ($SD = 2.81$) exposures; see Table 9 for breakdown of exposures by condition. Condition did not predict anticipated exposure likelihood after study completion ($ps > .39, \eta^2_p = .00 - .02$). Therefore, condition did not impact treatment engagement as measured by exposure homework completion.

Figure 15. Estimated likelihood of exposure completion after FU1

Although there were no significant quantitative differences in exposure completion, there were some interesting qualitative differences between conditions in self-reported motivation for completing exposures (see Table 10 for complete list of participant responses). Responses were not systematically analyzed, and therefore any conclusions drawn are preliminary and subjective; however, as responses were read through it was interesting to observe how often responses could
be correctly guessed and matched to condition. Certain words and phrases were identified as linked to a condition (e.g., the word “values” highlighted the response as part of the values condition).

Specifically, sample responses from participants in the values condition when asked what motivated them to complete exposures include: “I wanted to live out my values and be the person that I wanted to be”; “Wanting to challenge myself”; “I wanted to meet new people”; “Talking about my core values during the experiment and why I valued them and how I could continue to improve them”; “My values, this is to better understand myself and how I act in these situations.” In contrast, responses from participants in the money condition included: “Money”; “The ‘homework’”; “Because you asked me to”; “It was more mandatory than anything else.” The control condition responses appeared more similar to those in the values condition, but had a greater emphasis on anxiety reduction: “To get more comfortable with my anxiety”; “I just want to get over the social pressures so I can talk in meetings because it will be essential in the future”; “Trying to better myself to get rid of the anxiety”; “Wanted to push myself to do better since feeling the way I did during the study.” Therefore, although there were no quantitative differences in homework completion, qualitative motivation appeared different across conditions, such that the values condition frequently referenced values, the money condition referenced external motivators, and the control condition referenced symptom reduction.
<table>
<thead>
<tr>
<th>VALUES</th>
<th>MONEY</th>
<th>CONTROL</th>
</tr>
</thead>
<tbody>
<tr>
<td>By looking at my values and wanting to change how I able to approach my life in a different way. I shouldn't be scared of what other people think, but I should want to do things for myself and grow to learn more about myself.</td>
<td>The motivations were wither because I had to get them done (like report or talking to people in class or calling a customer back). Other than that, it'd be to be nice if I knew someone was going to be alone or was currently alone.</td>
<td>I was motivated to complete exposures because I like the feeling of being challenged, and I like growing as a person.</td>
</tr>
<tr>
<td>Talking about my core values during the experiment and why I valued them and how I could continue to improve them</td>
<td>To help my speech anxiety so it wouldn’t impact me when I’m older</td>
<td>Self improvement</td>
</tr>
<tr>
<td>My values, this is to better understand myself and how I act in these situations.</td>
<td>The &quot;homework&quot;</td>
<td>to get more comfortable with my anxiety</td>
</tr>
<tr>
<td>To overcome my fears and practice going through with the challenge.</td>
<td>Money</td>
<td>Money</td>
</tr>
<tr>
<td>I wanted to meet new people</td>
<td>I had to for Class</td>
<td>To improve myself</td>
</tr>
<tr>
<td>just thought i should do them dont really know why</td>
<td>Wanting to continue to face my fear.</td>
<td>To improve more outside of my comfort zone and to get more comfortable with my anxiety</td>
</tr>
<tr>
<td>To feel better about myself.</td>
<td>Grades</td>
<td>Needing to</td>
</tr>
<tr>
<td>to be more confident in myself</td>
<td>I wanted to continue improving and pushing myself.</td>
<td>To fully complete the study.</td>
</tr>
<tr>
<td>Romantic interest.</td>
<td>I was motivated to improve my self and keep the integrity of the study.</td>
<td>The study helped put in perspective why I have social anxiety. I realized that the only way I am going to overcome it is through exposures.</td>
</tr>
<tr>
<td>There was a worksheet that told me I was supposed to, also certain scenarios that need to be done in daily life count as exposures so most of the ones I did were readily available, I didn’t have to</td>
<td>To challenge myself to see if I could reduce my anxiety while talking to people</td>
<td>Trying to better myself and get rid of the anxiety</td>
</tr>
</tbody>
</table>
go out of my way to find any.

i wanted to live out my values and be the person that I wanted to be

Because you asked me to

Curious to test myself out

I needed to do the activity, but not to complete an exposure

It happened out of luck

Honestly I think I just found myself to be in a "exposure"; I didn't really force myself to do this practicing tasks.

Wanting to challenge myself

It was more mandatory than anything else

I just want to get over the social pressures so I can talk in meetings because it will be essential in the future.

The fact that I would gain from practicing this skill, and now is as good a time as any.

Wanted to do well in my classes

completing the experiment

I was motivated by my goal to feel more comfortable in social situations that have previously given my anxiety and I know that exposure works best the more you are exposed to the situation.

Wanted to push myself to do better since feeling the way I did during the study.

**If you did not complete exposures since the study ended, what prevented you from doing so?**

<table>
<thead>
<tr>
<th>VALUES</th>
<th>MONEY</th>
<th>CONTROL</th>
</tr>
</thead>
<tbody>
<tr>
<td>The things that I have to do for school, and just the way that I have been allocating my time recently to alot of my school work has caused this avoidance for more exposures.</td>
<td>Finished the required amount.</td>
<td>I have been busy</td>
</tr>
<tr>
<td>I finished my psychology study credits required</td>
<td>Lack of time (had a really intensive training and adopted a new pet), but I also am not motivated by paying myself. I have the money anyway, and I don't particularly want to be spending money (so paying myself to buy something isn't a good motivator)</td>
<td>Having finals and going back home where I'm comfortable with people.</td>
</tr>
</tbody>
</table>

*Note: All participant responses are included here and are recorded exactly as written. 44/50 participants who completed FU2 reported completing at least one exposure, while 6/50 participants did not complete any exposures. 6/56 participants who were sent the FU2 questionnaire did not respond.*

Interestingly, level of exposure engagement was stable throughout the study, with spontaneous completion of exposures during the week period between visits (i.e., from BL to
FU1) significantly predictive of subsequent exposure completion during the two-week follow-up period (i.e., from FU1 to FU2; $p = .003, \eta_p^2 = .34$). That is, those participants who independently chose to complete at-home exposures were also the ones most likely to complete the assigned at-home exposure tasks.

Aim 2: Examine inhibitory learning mechanisms through which personal values might enhance exposures

**Positive affect.** Means and standard deviations of affect data are displayed in Table 11. In order to test whether the values condition improved on fear outcomes as a function of increased positive affect, we tested positive affect as a mediator. However, contrary to our hypothesis, condition did not predict positive affect following the intervention, controlling for baseline positive affect ($p = .56, \eta_p^2 = .07$). As this was a core condition for mediation, this finding negated the need to test the additional mediation criteria, and suggests that positive affect does not mediate the relationship between the values condition and decreased fear. It is interesting to note, however, that positive affect also did not fully predict post-BAT retest anxiety ($p = .09, \eta_p^2 = .06$) or novel BAT anticipatory anxiety ($p = .56, \eta_p^2 = .04$). These two tested outcomes were chosen because they represent the two areas where the values condition evidenced reduced subjective fear response compared to the money condition.
Table 11. Means and standard deviations for PANAS scores

<table>
<thead>
<tr>
<th></th>
<th>VALUES</th>
<th>MONEY</th>
<th>CONTROL</th>
<th>TOTAL</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>POSITIVE AFFECT</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Baseline</td>
<td>30.00 (5.36)</td>
<td>26.10 (6.48)</td>
<td>28.65 (5.46)</td>
<td>28.25 (5.92)</td>
</tr>
<tr>
<td>Post-intervention</td>
<td>29.11 (8.12)</td>
<td>24.25 (6.47)</td>
<td>27.65 (7.07)</td>
<td>26.97 (7.40)</td>
</tr>
<tr>
<td>1-week follow-up</td>
<td>27.06 (6.24)</td>
<td>22.74 (6.38)</td>
<td>25.47 (7.24)</td>
<td>25.05 (6.76)</td>
</tr>
<tr>
<td>$n = 56$</td>
<td>Range: 17-40</td>
<td>Range: 12-33</td>
<td>Range: 12-37</td>
<td>Range: 12-40</td>
</tr>
<tr>
<td><strong>NEGATIVE AFFECT</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Baseline</td>
<td>14.40 (2.89)</td>
<td>15.50 (4.19)</td>
<td>16.85 (5.85)</td>
<td>15.58 (4.51)</td>
</tr>
<tr>
<td>$n = 60$</td>
<td>Range: 10-20</td>
<td>Range: 10-25</td>
<td>Range: 11-31</td>
<td>Range: 10-31</td>
</tr>
<tr>
<td>Post-intervention</td>
<td>17.47 (6.08)</td>
<td>17.75 (5.73)</td>
<td>18.25 (5.16)</td>
<td>17.83 (5.57)</td>
</tr>
<tr>
<td>$n = 59$</td>
<td>Range: 10-38</td>
<td>Range: 10-29</td>
<td>Range: 10-29</td>
<td>Range: 10-38</td>
</tr>
<tr>
<td>1-week follow-up</td>
<td>14.00 (3.76)</td>
<td>16.89 (3.00)</td>
<td>16.26 (6.16)</td>
<td>15.75 (4.61)</td>
</tr>
</tbody>
</table>

Note: PANAS = Positive and Negative Affect Schedule

**Retrieval cue.** We were not able to directly assess whether condition impacted outcome by serving as a retrieval cue, such that participants in the values condition enhanced their fear learning by drawing on values activated in the intervention that were also activated across settings. We initially hypothesized that values held across contexts could serve as a retrieval cue to activate the learning that had occurred in the original setting. Indirect evidence in support of this would occur if condition continued to predict outcome once other possible mediators were controlled for (that is, if positive affect and homework completion did not account for the entirety of the variance in outcome, suggesting that an additional untested variable may be involved in the process). In addition, if this were most apparent when examining generalization
to a novel context, rather than repeating the initial behavioral test, this would lend additional support for the aforementioned process.

As such, the first step was to identify and test any directly testable mediators, in order to better understand and control for their influence. As noted above, although the values condition reported less post-BAT retest anxiety and less novel BAT anticipatory anxiety than the money condition, positive affect did not mediate this link between the values condition and subjective fear reduction. Another possible mediator, amount of between-session exposure completion (see Table 9), also did not mediate this link. That is, condition did not predict amount of exposures completed during the one-week period following the intervention ($p = .52, \eta_p^2 = .01$), nor did exposures completed predict post-BAT retest anxiety ($p = .25, \eta_p^2 = .04$), or novel BAT anticipatory anxiety ($p = .58, \eta_p^2 = .01$). This suggests that the impact of values on fear occurred through another, untested mechanism.

The second step was then to test whether condition continued to predict outcome after controlling for these previously proposed mediators, and whether this was especially true for the novel BAT. Notably, condition no longer predicted outcome once homework completion and positive affect were controlled for when examining post-BAT anxiety ($p = .17, \eta_p^2 = .06$), but it did continue to predict outcome when assessing anticipatory anxiety prior to the novel BAT ($p = .02, \eta_p^2 = .18$), regardless of whether homework completion, positive affect, or both were added to the model. This suggests that generalization to a novel context was unrelated to positive affect or homework completion. Although we cannot draw conclusions about this process given that it was not directly tested, this result does suggest that it will be important to explore the mechanism of values as a retrieval cue more directly in future studies.
Aim 3: Assess potential moderators of the relationship between the motivation sources and exposure effectiveness

We chose *a priori* to examine the importance of values clarity, money importance, initial social anxiety level, and readiness to change as potential moderators (see Table 4 for baseline values of tested moderators). We selected BAT length (*Table 7*), anticipatory and post SUDS levels (*Table 5*), and number of exposures at FU2 (*Table 9*) as the outcome variables of interest, as these captured a combination of behavioral and subjective outcomes. Given the aforementioned challenges with the physiological data, we chose not to examine moderators of heart rate or skin conductance.

**Values clarity.**

**BAT.** Baseline level of values clarity did not moderate BAT retest length (*ps > .12, $\eta_p^2 = .00 - .05$). However, values clarity did moderate novel BAT length (*$p = .04, \eta_p^2 = .08$; *Figure 16*), such that within the values condition those with high values clarity spoke longer (*$p = .05 [.047]$*), whereas values clarity did not impact length within the control condition (*$p = .21$). This supports the capitalization hypothesis, such that those with pre-existing values strengths benefited more from the values condition.
Figure 16. *Values clarity moderated BAT length when comparing values vs. control conditions*

**SUDS.** Anticipatory anxiety was not moderated by values clarity prior to BAT retest ($ps > .51, \eta^2_p = .00 - .01$) or novel BAT ($ps > .42, \eta^2_p = .00 - .01$). Values clarity also did not moderate post anxiety at BAT retest ($ps > .22, \eta^2_p = .00 - .03$) or novel BAT ($ps > .15, \eta^2_p = .00 - .04$).

**Exposures.** Values clarity did not impact number of exposures completed at FU2 ($ps > .33, \eta^2_p = .00 - .03$).

**Money importance.**

**BAT.** Baseline value importance of money (VIM) did not moderate BAT retest length ($ps > .40, \eta^2_p = .00 - .01$) or novel BAT length ($ps > .42, \eta^2_p = .00 - .01$).

**SUDS.** VIM did not moderate level of anticipatory anxiety prior to BAT retest ($ps > .47, \eta^2_p = .00 - .01$) or novel BAT ($ps > .35, \eta^2_p = .00 - .02$). It also did not moderate self-reported anxiety immediately following BAT retest ($ps > .29, \eta^2_p = .00 - .02$) and novel BAT ($ps > .57, \eta^2_p = .00 - .01$).
**Exposures.** VIM significantly moderated number of exposures completed between FU1 and FU2 among those who reported completing any exposures ($p = .007, \eta^2_p = .21$; *Figure 17*). Interestingly, while there was no impact of valuing money on number of exposures completed within the values condition ($p = .36$), within the money condition those who valued money more completed less exposures, while those who valued money less completed more exposures ($p = .001$), which was in the opposite direction of our hypothesis. VIM did not moderate exposure completion when comparing the values or money conditions to the control condition ($ps > .12, \eta^2_p = .02 - .07$).

*Figure 17. Value importance of money moderated number of exposures completed over follow-up when comparing money vs. values conditions*

Note: FU = Follow-up

**Baseline social anxiety.**

**BAT.** Baseline social anxiety (as assessed by the SPIN) did not moderate BAT retest length ($ps > .42, \eta^2_p = .00 - .01$) or novel BAT length ($ps > .18, \eta^2_p = .00 - .04$).
Baseline social anxiety also did not moderate anticipatory anxiety prior to BAT retest ($ps > .25, \eta^2_p = .00 - .03$) or novel BAT ($ps > .31, \eta^2_p = .00 - .02$). However, baseline social anxiety did significantly moderate self-reported anxiety immediately following BAT retest when comparing the money condition to the control condition ($p = .04, \eta^2_p = .08$; Figure 18), and strongly trended in this direction when comparing the values condition to the control condition ($p = .05, \eta^2_p = .07$; Figure 19); money and values conditions did not differ significantly ($p = .71, \eta^2_p = .00$). Specifically, baseline social anxiety did not impact post-BAT anxiety within the money and values conditions ($ps > .28$), whereas those with lower baseline social anxiety reported less post-BAT anxiety (and those with higher social anxiety reported higher post-BAT anxiety) within the control condition ($ps < .03$). This suggests that the active conditions were most beneficial for those with higher social anxiety, while the control condition was most beneficial for those with lower social anxiety. However, this condition difference was not evident when participants were asked to complete the novel BAT task ($ps > .25 \eta^2_p = .00 - .03$).
Figure 18. *Baseline social anxiety moderated post-BAT retest SUDS when comparing money vs. control conditions*

![Graph showing the interaction effect of baseline social anxiety and experimental conditions on post-BAT retest SUDS.](image)

*Note: BAT = Behavioral approach task; SUDS = Subjective units of distress*

Figure 19. *Baseline social anxiety trended towards moderating post-BAT retest SUDS when comparing values vs. control conditions*

![Graph showing the trend in post-BAT retest SUDS with baseline social anxiety.](image)

*Note: BAT = Behavioral approach task; SUDS = Subjective units of distress*

**Exposures.** Baseline social anxiety significantly moderated number of exposures completed during the period between FU1 and FU2 (\(p = .03, \eta_p^2 = .14; Figure 20\)), such that less
socially anxious people completed more exposures than those with higher social anxiety within the values condition ($p < .001$), while more socially anxious people completed more exposures than those with lower social anxiety within the money condition ($p < .001$). This suggests that, in contrast to our hypothesis, the money condition encouraged greater exposure completion than the values condition for those with greater social anxiety. Baseline social anxiety did not moderate exposures completed when comparing the values or money conditions to the control condition ($ps > .12, \eta^2_p = .01 - .07$).

Figure 20. *Baseline social anxiety moderated number of exposures completed over follow-up when comparing money vs. values conditions*

![Graph showing the relationship between baseline social anxiety and number of exposures completed over follow-up.](image)

*Note: FU = Follow-up*

**Readiness to change.**

**BAT.** Readiness to change at baseline (as assessed by the URICA readiness scale) significantly moderated BAT retest length when comparing money vs. values conditions ($p = .006, \eta^2_p = .14$; *Figure 21*). In support of our hypothesis, within the money condition, those participants with low readiness to change spoke significantly longer than those with high
readiness \((p = .002)\), while in the values condition readiness did not impact speech length \((p = .35)\). Notably, those who reported less change readiness spoke an average of 78 seconds longer in the money condition than in the values condition during the BAT retest. Although there was not a significant moderating influence when comparing the money or values conditions to the control condition \((ps > .09, \eta^2_p = .04 - .06)\), there was a trend in this direction when comparing money and control conditions \((p = .09, \eta^2_p = .06; \text{Figure 22})\), such that money condition participants with less change readiness spoke longer during the BAT retest \((p = .02)\), while change readiness did not impact speech length in the control condition \((p = .53)\). However, this difference did not extend to novel BAT length \((ps > .10, \eta^2_p = .01 - .05)\). These findings suggest that the money condition was most motivating in terms of speech length for those with lower readiness to change.

Figure 21. Baseline readiness to change moderated BAT retest length when comparing money vs. values conditions

Note: BAT = Behavioral approach task
Figure 22. Baseline readiness to change trended towards moderating BAT retest length when comparing money vs. control conditions

Note: BAT = Behavioral approach task

**SUDS.** Although readiness to change did not significantly moderate anticipatory anxiety prior to BAT retest ($ps > .05, \eta^2_p = .01 - .07$) or novel BAT ($ps > .14, \eta^2_p = .00 - .04$), there was a trend in this direction ($p = .05, \eta^2_p = .07$; Figure 23) such that within the money condition those who endorsed greater readiness to change trended towards reporting less anticipatory retest anxiety than those with less change readiness ($p = .08$), while there was no impact of change readiness on anticipatory anxiety within the control condition ($p = .20$).
Figure 23. Baseline readiness to change trended towards moderating pre-BAT retest SUDS when comparing money vs. control conditions

Note: BAT = Behavioral approach task

Readiness to change did moderate self-reported post-BAT retest anxiety ($p = .05 [.045]$, $\eta^2_p = .08$; Figure 24). Within the values condition, those with greater readiness experienced less post-BAT retest anxiety ($p = .005$), while readiness did not impact anxiety within the control condition ($p = .69$). There was no difference when comparing the money condition to the control ($p = .55, \eta^2_p = .01$) or values conditions ($p = .20, \eta^2_p = .03$).
In addition, readiness to change significantly moderated post-novel BAT anxiety levels ($p = .04, \eta^2_p = .08$; Figure 25). Specifically, within the money condition, those less ready to change reported more anxiety ($p = .008$), while in the control condition there were no anxiety differences based on readiness to change ($p = .58$). However, change readiness did not moderate post-novel BAT anxiety when comparing the values condition to the money ($p = .36, \eta^2_p = .02$) or control conditions ($p = .34, \eta^2_p = .02$).
Figure 25. Baseline readiness to change moderated post-novel BAT SUDS when comparing money vs. control conditions

Note: BAT = Behavioral approach task; SUDS = Subjective units of distress

**Exposures.** Readiness to change did not moderate number of exposures completed during the FU1 to FU2 period ($ps > .06, \eta^2_p = .04 - .11$). However, during this follow-up period there was a trend ($p = .06, \eta^2_p = .11; Figure 26$) such that within the money condition those with more change readiness completed more at-home exposures ($p = .03$), while readiness did not impact at-home exposure completion within the values condition ($p = .76$).
Figure 26. *Baseline readiness to change trended towards moderating number of exposures completed at FU2 when comparing money vs. values conditions*

![Graph showing baseline readiness to change](image)

*Note:* FU = Follow-up

**Summary.** Overall, readiness to change appeared to have the greatest impact on money condition outcomes. Specifically, those with less readiness to change in the money condition spoke for a longer period of time at BAT retest, but experienced greater anxiety as a result, and subsequently completed fewer at-home exposures. In contrast, change readiness inconsistently impacted outcomes in the values and control conditions.
Discussion

To our knowledge, this is the first study to explicitly examine whether linking exposures to values improves the initial motivation and effectiveness of conducting exposure for social anxiety in an emerging adulthood population. In addition, it is the first known study to directly compare how intrinsic and extrinsic motivators function to enhance motivation and engagement in the context of exposure therapy.

Although we did not anticipate a significant change in social anxiety as a result of such a brief, targeted intervention and over such a brief period of time, self-reported social anxiety, as assessed by the SPIN, dropped significantly from baseline to the FU1 visit one-week later, and further decreased during the two-week period between FU1 and FU2. This suggests that even a brief exposure task can be effective in reducing social anxiety symptoms, adding to the limited literature on brief treatments for social anxiety (e.g., Herbert, Rheingold, & Goldstein, 2002). In addition, it suggests that in-session exposures focused on public speaking anxiety can impact social anxiety symptoms more broadly.

To follow, we contextualize findings for Aims 1 and 2, and integrate findings for Aim 3 (moderator analyses) throughout, thus facilitating framing the outcomes in light of the related moderator findings. It is important to note that our study was underpowered, and thus these findings represent a first step that will need to be replicated with a larger sample.

Fear Response Findings

Behavioral outcomes. In contrast to our hypothesis, those in the money condition spoke significantly longer than the other conditions during the BAT retest. Although participants were not told that they would be paid for length of time speaking, we speculated that the memory of being paid for exposures and the anticipation of possibly receiving payment for this task
motivated participants to speak longer than they otherwise would have. This fits with previous literature examining the role of money in increasing task persistence, with one study finding that participants in the money condition who were primed to think of money worked 48% longer on a difficult task than participants not reminded of money (Vohs, Mead, & Goode, 2008).

However, once participants in our study learned that they would not be paid (i.e., once they spoke and were not offered payment), and in the context of a novel speech task, subsequent performance in the money condition decreased to be similar to the other conditions. Therefore, it appears that money can be used to increase engagement, but that this motivation does not last once the reward is removed and the task difficulty is increased. Previous studies that have examined money as a motivator for behavior change have found similar results (e.g., Dienstbier & Leak, 1976). It may be that money, or another extrinsic reward, would need to be used consistently for a longer period of time prior to its removal, or intermittently reinforced after removal, in order to create lasting change.

Interestingly, readiness to change moderated the effectiveness of money in promoting behavioral engagement, such that money was most effective in those who were least motivated to change their behavior. This is consistent with the previous literature showing that extrinsic rewards are effective in those who are not already internally motivated, but that they can decrease motivation if applied to those with intrinsic motivation (Deci et al., 1999). It may therefore be important to assess change readiness prior to completing exposure work, and to tailor whether to use internal or external motivators based on the findings.

Values clarity trended towards moderating the effect of the values intervention on novel behavioral task length, with those with greater values clarity speaking longer during the wedding toast. Linking values to exposures may be most beneficial for those participants whose values are
most clearly defined and impactful on them. This may be particularly true for those activities that have the clearest ties to one’s values (i.e., giving a toast at a best friend’s or family member’s wedding, as opposed to speaking about a recent movie or less personal topics), a hypothesis that future studies could test directly.

**Subjective anxiety outcomes.** Although those in the money condition spoke longer during the BAT retest, those in the values condition reported feeling less anxious immediately following the BAT retest. In addition, this decreased anxiety generalized to the novel speech task, with those in the values condition also reporting less anticipatory anxiety than the money condition, and trending towards less post anxiety, prior to and following the novel speech. Although it is possible that those in the money condition experienced greater anxiety after BAT retest than the values condition because they spoke longer (i.e., completed a more difficult exposure), this finding held even when controlling for speech length; it is also notable that the money condition also spoke longer than the control condition, but reported a similar level of post-BAT anxiety, and that the values condition reported less novel BAT anxiety despite similar speech lengths.

It may be that the focus on one’s values, such as the value of connecting to others, served to reduce the fear of performance and judgment and instead increased the focus on connectedness. Focusing on connection and compassionate values instead of performance and social evaluative threat has previously been shown to decrease anxiety in a related social stress test (Abelson et. al., 2014), while focusing on performance has been shown to increase pressure and related anxiety (Baumeister, 1984). Interestingly, in one study in which participants were asked to complete a motor coordination activity in front of a judge, their performance actually decreased when offered a monetary incentive for completing it well (Baumeister, 1984). The
authors concluded that monetary incentives could increase pressure to perform, which subsequently increases self-consciousness and decreases performance.

Similarly, in an attention-training paradigm (Hereen, Reese, McNally, & Philippot, 2012), participants who were trained to attend away from threatening faces and towards positive faces experienced decreased anxiety during a speech task. Although this reduction in anxiety may be due to the specific focus on connection, it could be a broader change in attentional focus that was most important. Since those with social anxiety are often more internally focused, which can increase perceived physiological arousal and anxiety (Edelmann & Baker, 2002; Gerlach et al., 2004; Mauss et al., 2004), it may be that those in the values condition changed their attentional focus during the speech away from internal cues and towards a more external focus, thereby decreasing subjective anxiety experience.

The values affirmation literature suggests that affirming a value related to the task - as done presently - can increase defensiveness, thereby reducing openness to and engagement with the task (Sherman & Cohen, 2006). Yet in the current study, the values condition performed similarly to or better than the other conditions across the majority of fear outcome measures; thus, the values exercise did not seem to be activating this defensiveness. Participants were asked to identify broadly held core values, and then told to consider how engaging in the speech tasks could move them towards those values. Since the speech itself was not explicitly oriented around values, but rather was a way to move towards those values in other areas of one’s life (e.g., by participating in class or meeting new people, rather than by encouraging increased speech-giving), it may not have triggered this defensiveness. Clarifying the boundaries of when and how values affirmation decreases versus increases a sense of threat (defensiveness) and corresponding anxiety will be important to explore in the future.
Interestingly, initial social anxiety level moderated condition impact on self-reported anxiety during the behavioral tasks. Those with higher social anxiety reported less anxiety during the tasks if they were in the active conditions than in the control condition, whereas those with less anxiety benefited more from the control condition. It may be that those with less anxiety do not require an added intervention to encourage participation prior to the exposures, but that more anxious individuals do benefit from additional discussion about ways to frame the exposure and added motivation.

Change readiness also moderated self-reported anxiety levels, such that those in the money condition who were less ready to change experienced greater anxiety after the novel BAT compared to the control condition. There was also a trend in this direction for anticipatory anxiety before the BAT retest, when comparing the money and control conditions. Given that money was most effective at increasing task length in those who reported less change readiness, it would make sense that those same participants who pushed themselves to speak longer subsequently experienced more anxiety after (and when anticipating) the task.

**Physiological outcomes.** Contrary to our hypothesis that the primary change would be seen in the physiological measures, heart rate and skin conductance levels did not change significantly over the course of the study and were not impacted by condition. This contrasts with previous studies (Kircanski et al., 2012; Niles et al., 2015), which found physiological – but not self-report – measures of anxiety to be affected by condition in similar single-session exposure studies. Part of this finding may be due to our difficulty with the physiological equipment throughout the study. We have missing data due to electrode-related moisture issues at the beginning of the study, and though the heart rate data appear normal, the skin conductance
response data appears inflated. As a result, we chose not to assess for moderation within the physiological data in order to avoid over-interpretation of this data.

Aside from the issue with skin conductance response data, the overall physiological patterns appeared correct. Heart rate data in particular performed as expected, with anticipatory heart rate significantly higher than recovery heart rate. It is interesting, therefore, that condition did not impact heart rate (or skin conductance) in the same way it impacted self-report anxiety. Numerous previous studies on emotion have concluded that different indices of emotion (i.e., subjective, physiological, and behavioral) often do not cohere with each other (Gross, 1998; Lang, Rice, & Sternbach, 1972; Mauss & Robinson, 2009), including in social anxiety (Mauss et al., 2005; Mauss, Wilhelm, & Gross, 2004), lending support for the discrepancy across fear outcomes. However, this finding contrasts with previous studies testing inhibitory learning processes in similarly designed one-session exposure treatments, which found that condition impacted heart rate (Niles et al., 2015) and skin conductance response (Kircanski et al., 2012; Niles et al., 2015), but not subjective anxiety. It may be that the current study’s intervention impacted participants in a different way than the aforementioned studies, both of which examined linking exposure to affect labeling.

In the current study, focusing on one’s values during a challenging speech task impacted subjective anxiety experience but did not impact physiological or behavioral experiences of anxiety. It may be that participants in the values condition were less focused on their internal, physiological state (as previously discussed), and therefore they might have perceived less anxiety, despite objectively experiencing similar levels of physiological arousal.

Motivation Findings
Hierarchy willingness. After the intervention, the money condition was willing to start with exposures located higher on their fear hierarchy than the values condition, and reported more fear when imagining this. It could be that paying people to complete exposures raises the threat value of the exposure (e.g., I should only get paid for this if it’s really hard and scary), and thus participants who mentally link this choice to money are more likely to select harder items (i.e., I need to choose a hard and scary option to justify getting paid for it). Alternatively, it could be that the values condition chose hierarchy items based on how important the item was to them (i.e., based on their values), rather than how difficult it was from a fear-evoking perspective, and therefore they appeared to be challenging themselves less. In future studies, it would be interesting to more directly test this question (i.e., to assess whether a values intervention impacts the meaningfulness of the chosen hierarchy-starting place, and whether money increases the threat value of the hierarchy items).

Exposure outcomes. Contrary to our hypothesis, condition did not impact likelihood of completing exposures, either spontaneously during the one-week period after the intervention (between BL and FU1 sessions), or after being assigned exposure homework linked to condition to complete during the two-week period (between FU1 and FU2). However, the impact of condition on the number of exposures completed at FU2 was moderated in unexpected ways. Specifically, those who valued money more completed fewer exposures when they were in the money condition, whereas there was no impact of valuing money in the values condition. Participants were asked to pay themselves when they completed exposures, rather than earning money from the experimenter as they had done during the study. Those who value money highly may not have been motivated by earning money from themselves, whereas those who held money in less regard may have been sufficiently motivated by this. In future studies, it would be
interesting to test how results differ when participants are paid by an external source for completing exposures, rather than being asked to set aside their own money.

Interestingly, in the values condition less socially anxious participants reported completing more exposures over follow-up (e.g. thru FU2), whereas in the money condition more socially anxious participants completed more exposures. This fits with the previously reported results that those in the money condition pushed themselves to speak for a longer period but felt more anxious while doing so. It may be that money can be successfully used to motivate exposures initially, but that participants are more likely to “white knuckle” their way through the exposures rather than more openly engage in them (that is, they may be more likely to struggle and just try to endure through exposures, rather than opening up and being present with exposures as a learning experience). It is also possible that money was able to motivate participants who would otherwise have been too anxious to engage without some sort of external motivation to do so. In future studies, it would be interesting to test whether participants who complete exposures for external reasons are more likely to “white knuckle” exposures than those with an alternative exposure framing.

As part of the FU2 questionnaire, participants were asked to describe what motivated them to complete the exposure homework tasks. There were notable differences in participant answers reflective of their assigned condition that suggest a qualitative impact of exposure framing that is important to attend to, despite not being reflected in number of completed exposure assignments. While several participants in the values condition referenced their values or what they want to accomplish as a motivator ("I wanted to live out my values and be the person that I wanted to be"; “I wanted to meet new people), several participants in the money condition reported their motivation was more externally imposed ("Money"; “The ‘homework’”;
“It was more mandatory than anything else”). This reflects the difference between intrinsic and extrinsic motivation in completing assignments. In future studies, it would therefore be interesting to assess whether such condition differences remain in continued exposure completion after the conclusion of the study, and whether those who reported more intrinsic influences are more likely to continue challenging themselves on their own. Interestingly, the control condition responses appeared more similar to those in the values condition, but had a greater emphasis on anxiety reduction (“To get more comfortable with my anxiety”; “Trying to better myself to get rid of the anxiety”). This difference between the values and control condition responses fits with the broader difference between classic CBT and ACT approaches to treatment, with classic CBT emphasizing symptom reduction as the primary outcome and ACT emphasizing quality of life outcomes (Arch & Craske, 2008; Eifert & Forsyth, 2005).

Inhibitory Learning Mechanism Findings

Neither of our directly tested mediators – positive affect and homework completion – predicted outcomes, and therefore neither can be considered mediators. This is in contrast to previous studies which have identified positive affect (Zbozinek & Craske, 2017) and homework completion (Kazantzis et al., 2016; Leung & Heimberg, 1996) to be predictive of outcome.

Notably, the interventions actually served to slightly decrease positive affect and increase negative affect across all conditions, possibly because all interventions began by bringing up participants’ social anxiety and ended by asking whether they were willing to challenge themselves during the remainder of the study. Given this dampening effect of the interventions on positive affect, it may be that positive affect subsequently did not have the same impact on outcome that it might otherwise have had.
Homework completion may not have predicted outcome because, in order to test it as a mediator of subsequent fear and avoidance outcomes, we could only assess completion during the interim one-week period between BL and FU1, during which time participants had not yet been assigned to complete exposures. It may be that one week of completing one or two at-home exposure tasks did not provide a sufficiently greater treatment dose than completing no at-home exposure tasks. Additionally, it is possible that participants did not learn from the exposures in the same way that they might have if it was an explicitly assigned task, and therefore the experience was not as powerful as it could be. Importantly, in order to limit Type I error we chose a single type of treatment engagement (spontaneous homework completion) to test. We are not able to rule out other types of treatment engagement as mediating the outcome, such as hierarchy willingness, length of engagement in the BAT tasks, level of homework challenge rather than amount, or subjective feeling of engagement.

Finally, our study design did not allow us to directly assess whether values as a retrieval cue mediated the outcome, and this remains a question of interest. Retrieval cues that allow for mental reinstatement of the treatment context have been found to decrease fear return in novel contexts (Mystkowski et al., 2006). Since decreased anxiety was also noted prior to the novel BAT task (with a trend in this direction following the novel BAT) in the values condition compared to the money condition, this suggests that the values intervention’s effect was able to generalize to a new, unique situation. This generalization was not a result of positive affect or treatment engagement, particularly for the novel BAT outcome, which suggests that the retrieval cue hypothesis remains plausible. It will be important to directly test this possibility in future studies, e.g., by linking participant values to exposures, and subsequently comparing amount of
fear renewal in a novel context when cued with the values that had previously been introduced vs. cued with unrelated values.

**Study Limitations and Future Directions**

This study has multiple limitations. Most notably, there was difficulty with the physiological SCR data, and therefore all skin conductance measures should be interpreted with caution. It will be important to collect this data in future studies in order to draw conclusions about the impact of the intervention at a physiological level. In addition, it would be interesting to also assess salivary alpha-amylase or cortisol response, as has been done in similar studies assessing a values intervention (Gregg et al., 2014) and numerous studies that use a public speaking task to assess fear (i.e., the trier social stress test; Kirschbaum, Pirke, & Hellhammer, 1993).

Secondly, the sample size is modest, particularly for moderator and mediator analyses, and therefore these analyses should also be interpreted with caution. It will be important to replicate this study with a larger sample size. Additionally, the sample is comprised primarily of undergraduate students with high levels of self-reported social anxiety that were seeking participation credit for their undergraduate psychology course. These students likely had a greater range of desiring help and motivation to change than professional treatment-seeking individuals. Although this variability is helpful to power statistical analyses, it may not translate as readily to clinical, treatment-seeking populations. That stated, SPIN scores were in the clinically significant range and similar to treatment-seeking samples with an SAD diagnosis (Connor et al., 2000). It is also important to note that every participant automatically received an external motivator of receiving study credit or payment for their participation, and therefore it
also will be important to test this in a sample that does not receive external rewards for participation.

Finally, participants ranged in age from 17-26 years old and represented the emerging adulthood population. This is an important developmental period in which many individuals seek treatment (Hunt & Eisenberg, 2010), but areas that emerging adults are motivated by may not be similarly motivating to children, adolescents, or adults beyond this early adulthood period. Therefore, a key next step is to assess the impact of values and external rewards across a fuller range of developmental age groups. It will also be important to assess over a greater period of time (i.e., longer than two-week follow-up) to identify lasting impact of the intervention.

**Conclusion**

Overall, linking exposures to personal values decreased self-reported anxiety after a speech task, and this anxiety reduction generalized to a novel speech task. Linking exposures to money temporarily increased speech length, particularly for those expressing less readiness to change. Therefore, extrinsic monetary motivators may be useful to initiate behavior change in individuals who lack internal motivation, whereas a brief intrinsic values intervention can be used to enhance exposure learning and subsequently decrease subjective anxiety across feared situations. Neither positive affect nor spontaneous homework completion mediated this result, and therefore it will be important to continue exploring other potential mediators. If replicated, this has important implications for exposure framing and anxiety treatment more broadly. Continued exploration of the role of values in exposure therapy, and the role of motivators in treatment engagement more generally, will be important.
References


Appendix A: Study Materials
BL Session Experimenter Manual

0. After sign-up

- Send out calendar notification to judges and add details to personal calendar
- Check email account for messages daily
  - https://outlook.office.com/owa/
    - Account: intervention-study@colorado.edu
    - Password: howexciting!12
- Check Qualtrics for participant completion daily
- 2 days out: Email reminder to participant to complete pre-baseline survey
- 1 day out: Email 2\textsuperscript{nd} reminder if participant still has not completed survey
- Within 48 hours after survey completion, credit participant on Sona
  - Create timeslot under Expt. 1572 and fill it with participant name and 1 credit
- Print participant fear hierarchy after survey is completed

1. Setup

- Unlock doors, make it so they stay unlocked (press in button on side of door)
- Unlock door across from Joanna’s office
- Print participant fear hierarchy from Qualtrics, if not done so already
- Begin charging tablet
- Turn on equipment
  - Physio ACQ computer
  - Speakers (on speaker panel and on the speakers in control room and experiment room)
  - Mindware box in experiment room
- Set up folders
  - Values Exposure study $\rightarrow$ create new folder “participant #” (e.g., 101, 102, or Pilot 1, Pilot 2)
  - New folders within participant folder: TST_, BAT_, Exposure_, Physio (Session 1, Session 2 folders in it), Intervention_
- Set up cameras
  - Internet $\rightarrow$ lab camera $\rightarrow$ active x viewer $\rightarrow$ control $\rightarrow$ TSST subject view
  - Windows movie maker $\rightarrow$ capture from video device $\rightarrow$ USB video device $\rightarrow$
    - browse $\rightarrow$ participant folder $\rightarrow$ Intervention folder $\rightarrow$ ok
    - Save as “Intervention_#”
  - Mute computer
- Set up physio
  - Biolab
    - Make sure correct epoch file (to change: click edit epoch $\rightarrow$ file $\rightarrow$ open $\rightarrow$
      Session 1)
    - Make sure physio is saving to correct folder (Physio_# $\rightarrow$ Session 1)
- Pull up randomization file
• Don’t check condition randomization until ready for intervention
  • Check BAT randomization beforehand
• Ready electrodes
  o 7 ECG electrodes, 2 GSR electrodes, alcohol swab, tape, gloves
  o Untangle wires if tangled
• Write out yellow cards for online survey and session 1, leaving session 1 length blank
  o Online survey is worth 1 credit
  o Session 1 is worth 5 credits
• Get Qualtrics questionnaire on tablet
  o Turn on tablet
  o Turn on caffeine app
  o Log into intervention-study email
    ▪ Under “surveys” folder, find correct survey and click on link
    ▪ Will need to open “baseline SUDS” and “baseline survey” for this session
  o In Qualtrics, enter participant ID and push next; this will bring screen to participant home page

2. Greeting

*Bring 2 copies of consent

Hi, I’m ____, the experimenter for today’s study. You can come in here.

Put sign on door and close door. Lead participant to study room.

3. Introduction

This is the room you’ll be in for today’s study. I’ll sometimes be in here with you, and when I’m not I’ll be in the next room. These rooms are linked so that I can hear you if you speak into this speaker when I’m not in the room.

Did you bring a cell phone today? Could you please turn it off or put it on silent? Thank you! Since phones can be a source of distraction, there are no phones allowed during this study. I’m going to put your bag and phone in the other room so that they’re out of the way. Put phone and bag in control room.

4. Informed consent

I’ll begin by telling you a little about our study and having you fill out the consent form. If you agree to participate in the session today, you’ll be asked to complete some questionnaires. I’ll also attach electrodes to the front and back of your torso and your hand to collect baseline physiological state, and then you’ll be asked to take part in a couple of challenging tasks. I’ll go into a lot more detail about those later in the study.
Also, you'll receive 5 credits / $10 for completing today’s session, or 8 credits / $20 for completing today’s session and the follow-up session (plus the 1 credit you already received for completing the online questionnaires). Any questions about credits?

Here are a couple of consent forms. Please read the consent form at your own pace. At the end, please print and sign your name and today’s date on one of the copies – one copy is for you to keep. When you’re finished, or if you have any questions as you’re reading, just let me know through the speaker and I can hear you in the other room.

Leave the room and close the door. Put camera on privacy setting before return.

Once participant has finished reading the consent, reiterate the main parts:
Any questions about the consent? The main things here are that this study is completely voluntary and you can stop or leave at any time without penalty, and that we take confidentiality, or privacy, very seriously. This means that everything you say or fill out will be kept confidential within the study, except if you indicate you want to hurt yourself or someone else or that someone else is hurting you. Your data will be de-identified, meaning linked to a number and not to your name. So, please feel comfortable being open and honest throughout the study. Also, we will be recording portions of today for purposes of ensuring reliability. The recordings will be de-identified and destroyed as soon as they are no longer needed.

5. Electrode set-up

Put camera on privacy setting, if not already done.

To start, I’ll be attaching electrodes to you that will record your physiological responses during today’s study, so things like your heart rate, perspiration, and breathing rate. I’ll explain more as I’m attaching the electrodes, but before I do so I’ll need you to wash and dry your hands thoroughly with this soap, since two of the electrodes will be attached to your hand. Once you’re attached, you won’t be able to use the restroom, so I recommend using that as well. Show participant to the restroom.

Okay, so as I started to say before, these electrodes are electronic sensors that rest on your skin and measure basic physiology. They don’t hurt – they’re like having band-aids or stickers on your skin. I’ll tell you where I’m putting each one, and then move any clothing that’s in the way. I’ll wipe down the area with an alcohol wipe to clean it, and then put the electrode on. I’m going to put on gloves first. Put on gloves. Any questions before I start?

The first electrode goes on your right collarbone…. Continue with the remaining electrodes.

• Brown -: upper right on collarbone, put microspore tape on wire to hold in place
• Brown +: left rib, bottom middle on bone
• Black: right rib, bottom middle on rib
• White +: left collarbone, closer to middle of throat
• White -: Under braline (TAPE THIS!)
• Red-: on vertibrae 1.5 in below braline electrode (white -)
• Red +: back of neck (~ 4 vertebrae); 1.5 inches above white +
• Green +: at base of thumb (DO NOT USE ALCOHOL SWAB ON THE GREEN CORDS! GSR ELECTRODE!)
• Green -: Opp, side in line (DO NOT USE ALCOHOL SWAB ON THE GREEN CORDS!; GSR ELECTRODE!)

The last two electrodes go on your hand. Are you right or left-handed? Okay, I’m going to put the electrodes on your opposite hand.

Now you can go ahead and sit down. During the study, you can keep your hand resting on the armrest or the table or your lap, whatever is most comfortable, but just try to keep it as still as possible. And in general during today’s study, try to remain as still as possible since movement will create errors in the data. You’ll of course need to move some, and you’ll be getting up at different points in the study as well, but as much as possible try to keep everything still. Any questions about that?

I’m going to go to the other room and check to make sure everything is connected and recording properly. I’ll communicate with you through the speakers.

6. Pre-baseline physio testing

I’d like you to please sit up straight with your feet flat against the floor. Please breathe normally for a few seconds and relax, I want you to get used to wearing the electrodes.

Start pre-baseline data capture. Let 5-10 seconds pass (until the data fills the screen).

Now I’d like you to perform what we call a sniff test, where you’ll inhale very quickly, as if you were sniffing, and then breathe normally again, so that we can check that the data is recording properly. Please do this now. Check for a spike in the data. Repeat if necessary.

Stop pre-baseline data capture.

7. Baseline questionnaires

*Bring tablet with baseline questionnaires up and participant ID already entered. Also bring in pre-screen ID sheet.

Everything looks good! Now, we’ll start with a confidential questionnaire that asks questions relevant to the study. There are several sets of questions in this survey, so please pay attention to the instructions and read each question carefully. You don’t need to spend too much time thinking about your responses – just answer each question with whatever first comes to mind, while trying to be as open and honest as possible. Once you finish that, please also fill out this sheet to re-create your prescreen ID. Like everything else in this study, your pre-screen data will be de-identified and not associated with your name. Let me know through the speaker when you’re done or if you have any questions.
8. Baseline physio data

Thanks for completing the questionnaires! For the next part I’d like you to sit quietly and relax with your eyes open for the next 5 minutes so that I can take some baseline physiological readings and you can get used to wearing the electrodes. Try to remain as still as possible during this, since movement can interfere with the measurements. So, please get yourself into a comfortable position with your feet flat against the floor. Try to keep your head, arms, body, and legs as still as possible, and I’ll let you know when the 5 minutes are up.

Start baseline data capture. Accept the data when it has completed (300 seconds).

While baseline data is being captured, randomize participant to receive one of the two BAT topics (if not already done) and record which topic they will receive; participants will receive the other topic next session. Also get bowl of exposure #1 topics ready at this time.

9. Behavioral approach task (BAT)

*Bring in paper with BAT topic.

Enter room. Thank you for staying still during that! For the next part of the study, I want to get a sense of how you respond in social situations and specifically what you’re willing or able to do in a public speaking situation. So, for the next task I would like you to give a speech to a panel of judges for as long as you are willing, up to 5 minutes. The topic will be “what do you enjoy doing in your free time?” / “what is your ideal job and why you would be well-suited for it?” [Name the topic participant was randomized to]. I’ll give you 3 minutes alone to mentally prepare for the speech – so, just thinking about what you might want to say, not writing anything down. Then the judges will come in, and you’ll be asked to speak for as long as you are willing to. You can stop at any time by saying, “I’m done” or “I’d like to stop.” After 5 minutes, the judges will stop you. Do you have any questions? Okay, I’ll be back in 3 minutes to show you where to stand.

Leave room. Start pre-BAT data capture. Accept the data when it has completed (180 seconds). Return to room.

*Bring tablet with SUDS scale.

Before we start, I’d like you to record your current anxiety level, using this 0-100 point scale (hand participant SUDS scale). We will be using this scale several times throughout the study. It asks you to rate on a 0-100 point scale, with 0 representing no anxiety at all, 50 representing a moderate amount of anxiety, and 100 representing the worst anxiety ever, how you’re feeling in this moment. You can mark anywhere on the scale. Collect SUDS.

Thanks for doing that. Now I’ll show you where to stand for the speech task. Show participant where to stand. Okay, I will get the judges now and they will tell you when to begin.
Judges enter. Judge A says, “As a reminder, you will be speaking about what you enjoy doing in your free time / what your ideal job is and why you would be well-suited for it for as long as you are willing to.
Judge A says, “You may begin.” Judge B starts timer.

Make sure camera is on subject view. Start baseline_BAT data capture. Accept the data when the participant finishes speaking (either 5 minutes or earlier).

If participant ends early:

If participant pauses for 5 seconds or asks to stop, Judge A asks: Would you like to continue or stop?
If participant says ‘yes’ to Judge A question, Judge B says, “Thank you. You can stop now. We will let _______ know that you’re done, and she’ll return in a moment.”

If participant goes the full time: Judge B says, “Thank you. It’s been 5 minutes; you may stop. We will let _______ know that you’re done, and she’ll return in a moment.”

Judges exit the room. Judges will independently rate the participant on SUDS from 0-3. Once this is complete, judges will wait in the lab room diagonal from Joanna Arch’s office during the intervention. They will return to the control room once they receive a text from the experimenter.

Experimenter re-enters.

*Bring tablet with 2 SUDS scales.

What is your current anxiety level, on a 0-100 scale? Hand participant SUDS scale. What was your highest anxiety level during the speech? Hand participant another SUDS scale. Was that at the beginning, middle, or end of the speech? Record on SUDS sheet.

10. Recovery period

Thanks for answering that. Now, I’ll give you a few minutes to sit and take a break before we move on to the next part of the study. Just like before, try to remain as still as possible. I’ll come back in a few minutes.

Make sure camera is on participant. Start BAT_recovery_# (120 seconds).
Time 2 minutes.
Check participant group at this time.

11. Randomization and intervention

START WINDOWS MOVIE MAKER FOR Intervention_#

*Bring in appropriate worksheet + tablet for PANAS. Bring in tablet with SUDS.
What is your current anxiety level, on a 0-100 scale? Hand participant tablet.

Thank you for doing that! What was the speech task like for you? Elicit response.

Yes, based on the speech task and on your answers to some of the earlier self-report questions, it does seem like public speaking and social settings can be hard [or insert synonym used by participant] for you. Would you agree with that? Elicit response.

Would you be willing to complete a worksheet with me about social anxiety and how to lessen its impact on your life? Elicit response. Great, here’s the worksheet, and I’ll walk through it with you. I’ll read each question out loud, and then add a little more explanation to it. Ready?

Values Condition

Number one. To start, briefly describe your current social fears, social anxiety, or difficulties. So, what social situations are difficult for you? What are you afraid of in these situations?

Number two. In what ways, specifically, are these fears, anxiety, or difficulties affecting your life? This might be specific instances that you can remember being affected, or specific things that you aren’t able to do because of your fears, or anything else that comes to mind.

Number three. This question is about values. You can follow along as I read the description out loud and add to it. Read out loud, as follows:

Values represent what you care about and want to stand for in life, what guides who you want to be and what you want to do in life. Values can help motivate us.

Values are not something that you think you should care about, or something that your parents or friends or teachers care about; values are what resonates with you. Add: Just like you don’t have to justify your favorite ice cream flavor, you also don’t have to justify what values stand out to you.

Values also are not goals. They aren’t items that can be checked off or accomplished (like getting an A on a test). Instead, they’re closer to guiding principles (like learning). Add: So, for example, losing 10 pounds might be a goal, while eating healthy could be a value.

Sometimes it helps to think of values as being similar to a compass. If you listen to them, they help guide your life direction, but they aren’t a destination that can ever fully be reached. Add: This is sort of like taking a road trip. There’s the destination that you’re going to, the goal, but if you focus on the trip itself, your values of learning, exploring, and traveling, then the car ride to the destination is also rewarding. You can be that person who is only focused on the destination – that “are we there yet?” person – but connecting with your values allows you to appreciate the journey, the new experiences, and the scenery along the way.

There are an endless number of values, and everyone has different ones that most resonate with them. Examples of some commonly held values are listed here.
Do you have any questions about what values are? Does that make sense? Answer any questions. Based on this description, what are some of your top values? I also have a list of some more possible values, with pictures that might help you think of other values that you hold. You can choose any from this list, or come up with your own, or mix and match – whatever feels right to you. Try to aim for about 3-6 top values, although you can list more or less than that. There are no right or wrong values.

[If participant names something that isn’t a value (e.g., would have more self-confidence or would be less anxious): What would being more ______ allow you to do?]

Number four. Okay, now look back at your answers to questions 1 and 2 about your social anxiety and how it’s affecting your life. Pause to allow them to re-read their answers. What values do you think are being affected by the social fears that you described? In what ways? If participant struggles with this, can provide prompts (e.g., “It looks like connection is important to you – do you think your connection to others is affected by your social anxiety?” or “You listed creativity as something that’s important to you – do you think your creativity is impacted when you feel afraid?)

Number five. This is a picture of a dartboard. Think about your values and your experiences in each area listed around the dartboard, and then make an X in each area to represent where you are today. An X in the bull’s eye (at the center) means that you feel like you’re living fully by your values and are happy with that area of your life. An X far from the bull’s eye means that you feel like you’re way off the mark in terms of living by your values and how you would like that area of your life to be. We all have areas of our life in which we’re living more fully by our values, and areas that we struggle with more. I’m going to describe each area in a little more detail, then have you mark where you think you stand.

The education/work area refers to education and knowledge, either at school or outside of school, and to any jobs or other work experiences that you might be involved in or want to be involved in. Mark where you are today.

The personal growth/health area refers to your development as a human being. This might include things like creativity, spirituality, religion, yoga, or nature. It might also include things like exercise, eating and drinking habits, or sleep. Mark where you are today.

The hobbies/relaxation area refers to how you play or relax, or what you do for fun, enjoyment, and creativity. This might include both what you do for play or relaxation, as well as how often you’re engaged in those things. Mark where you are today.

Finally, the relationships area refers to three different types of relationships you might have in your life: peers or friends, romantic relationships, and relationships with family members. This might refer to the closeness of these relationships, how you are in them, or even what relationships you want to develop but don’t currently have in your life. Mark where you are today.

[After participant response] It’s great if you feel that you are living according to your values in several areas, and it’s also okay to feel that you’re off the mark in some or all of these domains. Noticing where you stand is an important first step towards living more in line with your values.
It is also important to remember that each small step you take towards the center is meaningful, but that living by your values is a process and so big changes won’t happen overnight.

Number six. Now, how would being able to fully engage in these feared or avoided social situations – to take part and really connect in them -- move you towards your values? Pause. Continue if necessary. Be as specific as possible. For example, what values might you be able to draw closer to if you could participate in more social activities? How might some of the X’s you made on the dartboard look differently?

Finally, now that we’ve gone through this worksheet together, would you be willing to challenge yourself today for the sake of moving towards your values? Help participant circle “yes.” [Discuss reservations with participant if they are unwilling to say yes. If participant then agrees to say yes, continue with experiment. If not, thank participant for their time, debrief, and pay participant.]

Money Condition

Number one. To start, briefly describe your current social fears, social anxiety, or difficulties. So, what social situations are difficult for you? What are you afraid of in these situations?

Number two. This question describes a strategy that can be helpful. You can follow along as I read the description out loud. Read out loud, as follows:

When we’re having a hard time doing something unpleasant, such as engaging in these feared social situations, it can be helpful to use a tangible reward like money to motivate ourselves.

There are many examples of this, as most people have used this strategy in some way at some point in their life. Common examples of this include: getting an allowance for doing chores, using an app that pays you each time you go to the gym (or an app that charges you each time you skip), or sticking with a boring summer job for the paychecks.

Do you have any questions? Does this make sense? Answer any questions. Based on this description, describe a time when you’ve successfully used this strategy. If you can’t think of anything, you can also describe a time when someone you know has used this strategy.

Number three. What was most helpful about using a reward like money to motivate you?

Number four. How can you imagine applying this strategy to tackling your social fears?

Finally, now that we’ve gone through this worksheet together, would you be willing to apply this idea and challenge yourself today in order to earn money? Help participant circle “yes.” [Discuss reservations with participant if they are unwilling to say yes. If participant then agrees to say yes, continue with experiment. If not, thank participant for their time, debrief, and pay participant.]
On the back of this worksheet there are a few more questions to go through to help you think more broadly about money. Like before, I’ll read each question out loud and walk through them with you.

Number five. How do you imagine that views on money have changed since your parents’ generation?

Number six. What types of currency have you used (for example, while traveling)? How has this affected your view of US currency?

Number seven. Do you usually pay for things using cash, check, or credit card? Why?

Number eight. Would you describe yourself as a spender or a saver? How so?

Control Condition

Number one. To start, briefly describe your current social fears, social anxiety, or difficulties. So, what social situations are difficult for you? What are you afraid of in these situations?

Number two. This question describes a strategy that can be helpful. You can follow along as I read the description out loud. Read out loud, as follows:

When we’re having a hard time doing something unpleasant, such as engaging in these feared social situations, it can be helpful to practice doing it by starting with smaller, more manageable situations and working our way up to the harder situations, sort of like climbing up a ladder one rung at a time, rather than just trying to jump to the top.

There are many examples of this, as most people have used this strategy in some way at some point in their life. Common examples of this include: starting with lighter weights at the gym and working up to heavier ones to get stronger, learning how to drive by practicing in a parking lot before trying to go on the highway, and practicing a speech in front of a few people before giving it to the entire class.

Do this strategy make sense to you? Any questions? Answer any questions.

Finally, now that we’ve gone through this worksheet together, would you be willing to apply this idea and challenge yourself today in order to work towards the more challenging situations? Help participant circle “yes.” [Discuss reservations with participant if they are unwilling to say yes. If participant then agrees to say yes, continue with experiment. If not, thank participant for their time, debrief, and pay participant.]

On the back of this worksheet there are a few more questions to go through related more broadly to learning styles. Like before, I’ll read each question out loud and walk through them with you.

Number three. When do you do your best studying or working?(e.g., time of day, time of week, location)?
Number four. What makes this the best time?

Number five. How do you prefer to study (e.g., re-read notes, take practice quizzes, teach others)?

Number six. Do you prefer to take notes by hand or on the computer? Why?

Number seven. Do you prefer to take notes by hand or on the computer? Why?

Number eight. Who was your favorite teacher? Why did their teaching style work well for you? (This could be any teacher from Kindergarten through now).

Number nine. Who was your least favorite teacher? Why did their teaching style not work well for you?

Number ten. How have your studying habits changed since high school, if at all?

12. Exposure #1

Great! Before I get into the details about the challenging task, could you briefly fill out this questionnaire? Let me know through the speaker when you’ve finished. Hand participant the PANAS questionnaire on the tablet and leave the room. Print the participant’s individualized hierarchy, if not done so already. Re-enter the room when the participant indicates they’ve completed the questionnaire.

*Bring in hierarchy. Bring in tablet with SUDS.

Thank you! Now, do you remember being asked to rank different situations according to how difficult you thought they would be for you? Show participant their hierarchy. This is what it looked like – do you remember doing this? Wait for participant response. I want you to look through this and see if you still agree with how you ranked each situation. If anything has changed since you made this, you can write directly on the sheet to fix it. Give participant time to read through the hierarchy and make changes if needed.

The study will continue in a moment, but before I tell you about the next challenging task, I’m curious about where you would be willing to start on this list if you were to start challenging yourself in social situations. This won’t affect the next part of the study, but it can help you think about challenges you can do on your own. So, given what we just discussed as we filled out the worksheet together, if you could begin challenging yourself in social situations by starting anywhere on this list, where would you be willing to start? Have participant circle on the hierarchy where they would be willing to start. If you imagine doing this, what is your anxiety level from 0-100, with 100 being the highest ever and 0 being no anxiety at all? Have participant write down their response next to their hierarchy item. What things did you think about when you came up with the decision to start here? How did you decide that you would be willing to start.
here? Have participant briefly say and then write down their thought process for them, trying to use their own words as much as possible.

Thank you for your willingness to begin here. In order to keep the study consistent across everyone, the next part of the study will involve more public speaking. Completing a challenging task such as public speaking is also called ‘doing an exposure,’ because it involves exposing oneself to something that’s challenging or scary in order to be able to do that thing and similar things in the future.

In this case, the exposure that I’m going to ask you to participate in with me will involve giving five 1-minute speeches to a panel of judges, with a 30-second break period in between each. You’ll draw each topic from this bowl, and you will have 1 minute to prepare for each speech. Before you give each speech, I’ll have you record your current anxiety using the tablet. After the speech, you’ll have 30 seconds to rest, and then I’ll ask you to record your anxiety. Then you’ll pick the next topic from the bowl, and have 1 minute to prepare. I’ll ask you to rate your anxiety level, and then you’ll give the next speech. Does that make sense? Answer any questions.

What is your anxiety level now on the 0-100 scale? Have participants record SUDS on tablet.

The last thing that I’d like you to do before the judges come back in for the speech exposure is to do a 1-minute think-aloud task. For this, I’ll go into the other room, and when I tell you to start I’d like you to just speak out loud for 1 minute about whatever thoughts you’re currently having, including those about the upcoming speeches; just whatever is going through your mind. I’ll turn the volume off while you’re doing this so that you feel comfortable being totally honest about whatever thoughts you might be having. Do you have any questions?

It’ll take me a couple minutes to set up, but I’ll let you know over the speaker when to begin.

GET WINDOWS MOVIE MAKER READY FOR TST_preexposure1 # Mute computer volume.

Text judges to let them know they should line up in the control room. Turn sound off in control room.

Go to the other room and re-state the main points of the think-aloud task: Now I would like you to speak out loud for 1 minute about any thoughts you are currently having, including those about the upcoming speeches. Just speak freely about whatever is going through your mind. I’ll turn off the volume so that you can be open and I’ll let you know when 1 minute is up. You may begin. Turn volume down, press record, and stop after 1 minute has passed. It has been 1 minute; you may stop.

*Bring in bowl with exposure #1 topics. Bring in tablet with SUDS.

Re-enter room. Okay, now the judges will come back in for the exposure. Each speech will last for 1 minute. Try to speak the entire time, even if you have to repeat yourself. Once the judges enter, I will prompt you over the speaker to pick your first topic.
For the values condition: While doing this, try to think about the exercise we completed around your values, and how they’re being impacted. Think about how completing these exposure tasks would move you towards your values.

For the money condition: In order to reward you for participating in this challenging task, you will be paid [an additional] $1 for every minute you are willing to stick with the exposure, up to $5 for completing the entire exposure. Thinking back to the exercise we completed, this will help provide an extra incentive for you to do something that you might not choose to do on your own.

For the control condition: Try to think of this in terms of the exercise we completed, where we talked about practicing smaller tasks in order to work up to more challenging ones. Although this might be challenging for you, think of this as practice to help you work towards even more challenging tasks.

Okay, I will let the judges know you are ready.

**Get judges from control room and show them into the experiment room.** Have participant stand in front of the judges and have judges sit in their panel seats. Judges will time each speech and experimenter will time the breaks between each exposure.

Turn on volume. Make sure camera is on subject view.

Experimenter: You can draw the first topic now. After participant draws topic: You will have 1 minute to mentally prepare. Start pre_speech1 data capture. Experimenter: Please record your current anxiety level using the tablet. Press the next button when you have finished. Experimenter (once participant has recorded their SUDS): Ready. Judge A: Please begin speaking. Judge B starts timer. Start Speech1 data capture. Judge B: It’s been 1 minute, you can stop. Experimenter: You have 30 seconds to rest. Start Speech1_recovery data capture. Experimenter: Please record your current anxiety level and your highest anxiety level during the speech using the tablet. Press the next button when you have finished.

Experimenter: Please draw your next topic. After participant draws topic: You will have 1 minute to mentally prepare. Start pre_speech2 data capture. Experimenter: Please record your current anxiety level. Experimenter (once participant has recorded their SUDS): Ready. Judge A: Please begin speaking. Judge B starts timer. Start Speech2 data capture. Judge B: It’s been 1 minute, you can stop. Experimenter: You have 30 seconds to rest. Start Speech2_recovery data capture. Experimenter: Please record your current anxiety level and your highest anxiety level during the speech.

Experimenter: Please draw your next topic. After participant draws topic: You will have 1 minute to mentally prepare. Start pre_speech3 data capture.
Experimenter: *Please record your current anxiety level.*
Experimenter (once participant has recorded their SUDS): *Ready.*
Judge A: *Please begin speaking.* Judge B starts timer. **Start Speech3 data capture.**
Judge B: *It’s been 1 minute, you can stop.*
Experimenter: *You have 30 seconds to rest.* **Start Speech3_recovery data capture.**
Experimenter: *Please record your current anxiety level and your highest anxiety level during the speech.*

Experimenter: *Please draw your next topic.* After participant draws topic: *You will have 1 minute to mentally prepare.* **Start pre_speech4 data capture.**
Experimenter: *Please record your current anxiety level.*
Experimenter (once participant has recorded their SUDS): *Ready.*
Judge A: *Please begin speaking.* Judge B starts timer. **Start Speech4 data capture.**
Judge B: *It’s been 1 minute, you can stop.*
Experimenter: *You have 30 seconds to rest.* **Start Speech4_recovery data capture.**
Experimenter: *Please record your current anxiety level and your highest anxiety level during the speech.*

Experimenter: *Please draw your final topic.* After participant draws topic: *You will have 1 minute to mentally prepare.* **Start pre_speech5 data capture.**
Experimenter: *Please record your current anxiety level.*
Experimenter (once participant has recorded their SUDS): *Ready.*
Judge A: *Please begin speaking.* Judge B starts timer. **Start Speech5 data capture.**
Judge B: *It’s been 1 minute, you can stop.* ____ will be in shortly.
Experimenter: *Please record your current anxiety level and your highest anxiety level during the speech.*

Judges will leave the room. Judges will independently rate the participant on SUDS from 0-3.

**13. Recovery Period**

*Thanks for completing the exposure – I know this task can be challenging.*

[If participant is in money condition]: *You earned $5 [or whatever amount the participant earned] for speaking the entire time during the speech task.*

*Now, I’ll give you a few minutes to sit and take a break before we move on to the next part of the study. You can have a seat. Just like before, try to remain as still as possible. I’ll come back in a few minutes.*

Make sure camera is on participant. **Start Exposure_1 recovery data capture (120 seconds).**
Time 2 minutes.

**14. Exposure #1 debriefing**

*Bring in tablet with SUDS.*
I’d like to get your rating of what your anxiety level is now on the 0-100 scale? Have participants record on tablet.

Before we move on, I’d like you to do another 1-minute think-aloud task. Like before, I’d like you to speak out loud for 1 minute about whatever thoughts you’re currently having, including those related to the speeches you just completed; just whatever is going through your mind. I’ll turn the volume off while you’re doing this so that you feel comfortable being totally honest about whatever thoughts you might be having. Do you have any questions?

Make sure camera is on participant. GET WINDOWS MOVIE MAKER READY FOR TST_postexposure1_. Mute computer volume.

Go to the other room and re-state the main points of the think-aloud task: Now I would you like to speak out loud for 1 minute about any thoughts you are currently having, including those related to the speeches you just completed. Just speak freely about whatever is going through your mind. I’ll turn off the volume so that you can be open and I’ll let you know when 1 minute is up. You may begin. Turn volume down, press record, and stop after 1 minute has passed. It has been 1 minute; you may stop.

15. Rest period

Now we’ll take a few minutes break before the next part of the study. Just sit quietly and rest during this period. I’ll come back in a few minutes.

Time 3 minutes.

After the 3-minute rest period is over and participant is back in the study room, make sure volume to control room is turned off so that judges don’t overhear condition-specific instructions.

16. Exposure #2

*Bring in bowl with exposure #2 topics. Bring in tablet with SUDS.

Okay, for the last part of the study today, I’m going to ask you to give 5 more speeches, this time for 2 minutes each with a 30-second break period and a 1 minute preparation period.

What is your anxiety level now on the 0-100 scale? Have participants record on tablet.

Okay, now the 2 judges will come back in for the exposure. Each speech will last for 2 minutes. Try to speak the entire time, even if you have to repeat yourself. Once the judges enter, I will prompt you over the speaker to pick your first topic.
For the values condition: While doing this, try to think about the exercise we completed around your values, and how they’re being impacted. Think about how completing these exposure tasks would move you towards your values.

For the money condition: In order to reward you for participating in this challenging task, you will be paid [an additional] $1 for every minute you are willing to stick with the exposure, up to $10 for completing the entire exposure. Thinking back to the exercise we completed, this will help provide an extra incentive for you to do something that you might not choose to do on your own.

For the control condition: Try to think of this in terms of the exercise we completed, where we talked about practicing smaller tasks in order to work up to more challenging ones. Although this might be challenging for you, think of this as practice to help you work towards even more challenging tasks.

Okay, I will let the judges know you are ready.

**Get judges from control room and show them into the room.** Have participant stand in front of the judges and have judges sit in their panel seats. Judges will time each speech and experimenter will time the breaks between each exposure.

Turn on computer screen and volume. Make sure camera is on subject view.

Experimenter: You can draw the first topic now. After participant draws topic: You will have 1 minute to mentally prepare. Start pre_speech6 data capture.
Experimenter: Please record your current anxiety level using the tablet. Press the next button when you have finished.
Experimenter (once participant has recorded their SUDS): Ready.
Judge B: It’s been 2 minutes, you can stop.
Experimenter: You have 30 seconds to rest. Start Speech6 recovery data capture.
Experimenter: Please record your current anxiety level and your highest anxiety level during the speech using the tablet. Press the next button when you have finished.

Experimenter: Please draw your next topic. After participant draws topic: You will have 1 minute to mentally prepare. Start pre_speech7 data capture.
Experimenter: Please record your current anxiety level.
Experimenter (once participant has recorded their SUDS): Ready.
Judge B: It’s been 2 minutes, you can stop.
Experimenter: You have 30 seconds to rest. Start Speech7 recovery data capture.
Experimenter: Please record your current anxiety level and your highest anxiety level during the speech.

Experimenter: Please draw your next topic. After participant draws topic: You will have 1 minute to mentally prepare. Start pre_speech8 data capture.
Experimenter: Please record your current anxiety level.
Experimenter (once participant has recorded their SUDS): Ready.
Judge A: Please begin speaking. Judge B starts timer. **Start Speech8 data capture.**
Judge B: It’s been 2 minutes, you can stop.
Experimenter: You have 30 seconds to rest. **Start Speech8_recovery data capture.**
Experimenter: Please record your current anxiety level and your highest anxiety level during the speech.

Experimenter: Please draw your next topic. After participant draws topic: You will have 1 minute to mentally prepare. **Start pre_speech9 data capture.**
Experimenter: Please record your current anxiety level.
Experimenter (once participant has recorded their SUDS): Ready.
Judge A: Please begin speaking. Judge B starts timer. **Start Speech9 data capture.**
Judge B: It’s been 2 minutes, you can stop.
Experimenter: You have 30 seconds to rest. **Start Speech9_recovery data capture.**
Experimenter: Please record your current anxiety level and your highest anxiety level during the speech.

Experimenter: Please draw your final topic. After participant draws topic: You will have 1 minute to mentally prepare. **Start pre_speech10 data capture.**
Experimenter: Please record your current anxiety level.
Experimenter (once participant has recorded their SUDS): Ready.
Judge A: Please begin speaking. Judge B starts timer. **Start Speech10 data capture.**
Judge B: It’s been 2 minutes, you can stop. _____ will be in shortly.
Experimenter: Please record your current anxiety level and your highest anxiety level during the speech.

Judges will leave the room. Judges will independently rate the participant on SUDS from 0-3.

17. Recovery Period

Thanks for completing the exposure – I know this task can be challenging.

[If participant is in money condition]: You earned $10 [or whatever amount the participant earned] for speaking the entire time during the speech task.

Now, I’ll give you a few minutes to sit and take a break. You can have a seat. Just like before, try to remain as still as possible. I’ll come back in a few minutes.

Make sure camera is on participant. **Start Exposure_2 recovery data capture (120 seconds).**
Time 2 minutes.

17. Initial session conclusion

* Bring in yellow credit cards [and money if in payment condition]. Bring in tablet with SUDS.
I’d like to get your rating of what your anxiety level is now on the 0-100 scale? Have participants record on tablet.

Great! That’s everything for today. How are you feeling? Check that participant is recovered enough to leave study. Here is your card showing the 5 credits that you earned. Hand participant the yellow card filled out with name, study number, and number of credits earned. You should receive credit on Sona for this part of the study within the next two days. The follow-up session is scheduled for the same time next week (next ______ at ______). This next session will also include questionnaires and a challenging task, but will be a little shorter than today. It will be about an hour and a half long. It is really important that you come to this follow-up session. I will plan on seeing you then.

Remove physio. Return backpack and phone.

18. Cleanup

• Move files into their respective folders in the participant folder
• Update all excel files (i.e., master list, data entry)
• Back up data onto a portable hard drive
• Turn off computers, Mindware box, speakers (everything that was previously turned on)
• Lock doors (including door across from Joanna’s office)
• Put folders and consent forms into appropriate files separately
FU1 Session Experimenter Manual

1. Setup

- Copy completed participant worksheet (2-sided color copy)
- Unlock doors, make it so they stay unlocked (press in button on side of door)
- Unlock door across from Joanna’s office
- Begin charging tablet
- Turn on equipment
  - Physio ACQ computer
  - Speakers (on speaker panel and on the speakers in control room and experiment room)
  - Mindware box in experiment room
- Set up cameras
  - Internet → lab camera → active x viewer → control → subject
  - Windows Movie Maker → capture from video device → USB video device → browse → participant folder → TST → ok
    - Save as TST_post_newBAT_#
  - Mute computer
- Set up physio
  - Biolab
  - Make sure correct epoch file (to change: click edit epoch → file → open → Session 2)
  - Make sure physio is saving to correct participant folder (Physio_# → Session 2)
- Ready electrodes
  - 7 ECG electrodes, 2 GSR electrodes, alcohol swab, tape, gloves
  - Untangle wires if tangled
- Write out yellow card for session 2, leaving length blank
- Spread out magazines on desk by window. Make sure any patient information is stored away.
- Put camera on privacy setting (will begin with electrodes)
- Get Qualtrics questionnaires on tablet
  - Turn on tablet
  - Turn on caffeine app (make sure to select on and to click box to keep it active)
  - Log into intervention-study email
    - Under “surveys” folder, find correct survey and click on link
    - Will need to open “follow-up baseline,” “follow-up post,” and “second session SUDS” for this session
  - In Qualtrics, enter participant ID and push next; this will bring screen to participant home page
2. Greeting

*Bring completed worksheet in.

Hi, _____. It’s good to see you again! You can come into this room just like before.

Put sign on door and close door. Lead participant to study room.

3. Introduction

Just like last time, you’ll be in this room for today’s study, and I’ll either be in here with you or I’ll be in the next room. You’re always welcome to speak into this speaker if you need anything when I’m not in the room. Could you please turn off your cell phone or put it on silent? Thank you! Like before, I’ll put your phone and bag in the other room so it’s out of the way. Put phone and bag in control room.

4. Review informed consent

Like last time, you’ll be asked to complete some questionnaires today. I’ll also attach the electrodes again to collect physiological information, and you’ll be asked to take part in a couple challenging tasks. To help prepare you, take a look at this worksheet that you completed earlier. Hand participant worksheet and give them a minute to review it (can time by watching video). Any questions about that? I’ll go into more detail about those later in the study. Do you have any questions so far?

Also, you’ll receive 3 credits / $10 for completing today’s session. Any questions about credits [payment] at this point?

As a reminder, this study is completely voluntary and you can stop or leave at any time without penalty. Also as a reminder, we take confidentiality, or privacy, very seriously. This means that everything you say or fill out will be kept confidential within the study, except if you indicate you want to hurt yourself or someone else or that someone else is hurting you. Your data will be de-identified, meaning linked to a number and not to your name. So, please feel comfortable being open and honest throughout the study.

5. Electrode set-up

Put camera on privacy setting.

To start, I’ll be attaching electrodes to you that will record your physiological responses during today’s study. Again, that includes your heart rate, perspiration, and breathing rate. Before I do that, can you please wash and dry your hands thoroughly with this soap? As a reminder, you should also use the restroom at this time if you need to. Show participant to the restroom.

Just like before, I’ll tell you where I’m putting each electrode, and then move any clothing that’s in the way. I’ll wipe down the area with an alcohol wipe to clean it, and then put the electrode
on. I’m going to put on gloves so that you know my hands are clean. Put on gloves. Any questions before I start?

The first electrode goes on your right collarbone…. Continue with the remaining electrodes.

- Brown -: upper right on collarbone, put microspore tape on wire to hold in place
- Brown +: left rib, bottom middle on bone
- Black: right rib, bottom middle on rib
- White +: left collarbone, closer to middle of throat
- White -: Under braline (TAPE THIS!)
- Red -: on vertibrae 1.5 inches below braline electrode (white -)
- Red +: back of neck (~ 4 vertibrae); 1.5 inches above white +
- Green +: at base of thumb (DO NOT USE ALCOHOL SWAB ON THE GREEN CORDS! GSR ELECTRODE!)
- Green -: Opp, side in line (DO NOT USE ALCOHOL SWAB ON THE GREEN CORDS!; GSR ELECTRODE!)

Remind me, are you right or left-handed? Okay, I’m going to put the electrodes on your opposite hand.

Now you can go ahead and sit down. Remember, during the study, you can keep your hand resting on the armrest or the table or your lap, whatever feels most comfortable, but try to keep it as still as possible. And in general during today’s study, try to remain as still as possible since movement will create errors in the data.

I’m going to go to the other room and check to make sure everything is connected and recording properly. I’ll communicate with you through the speakers.

6. Pre-baseline physio testing

I’d like you to please sit up straight with your feet flat against the floor. Please breathe normally for a few seconds and relax, I want you to get used to wearing the electrodes.

Start pre-baseline data capture. Let 5-10 seconds pass (until the data fills the screen).

Now I’d like you to perform the sniff test, where you’ll inhale very quickly, as if you were sniffing, and then breathe normally again, so that we can check that the data is recording properly. Please do this now. Check for a spike in the data. Repeat if necessary.

Stop pre-baseline data capture.

7. Baseline questionnaires

*Bring tablet with follow-up baseline questionnaires up and participant ID already entered
Everything looks good! Now, we’ll start with a confidential questionnaire that asks questions relevant to the study. There are several sets of questions in this survey, so please pay attention to the instructions and read each question carefully. You don’t need to spend too much time thinking about your responses – just answer each question with whatever first comes to mind, while trying to be as open and honest as possible. Let me know through the speaker when you’re done or if you have any questions.

8. Baseline physio data

Thanks for completing the questionnaires! For the next part I’d like you to sit quietly and relax with your eyes open for the next 5 minutes so that I can take some baseline physiological readings and you can get used to wearing the electrodes. Try to remain as still as possible during this, since movement can interfere with the measurements. So, please get yourself into a comfortable position with your feet flat against the floor. Try to keep your head, arms, body, and legs as still as possible, and I’ll let you know when the 5 minutes are up.

Start baseline data capture. Accept the data when it has completed (300 seconds).

9. BAT Re-test

*Bring in paper with BAT topic.

Enter room. Thank you for staying still during that! For the next part of the study today, I’m going to ask you to repeat the initial speech task that you did last week with a different topic. Specifically, I would like you to give a speech to a panel of judges for as long as you are willing, up to 5 minutes. This time, the topic will be “what do you enjoy doing in your free time?“ / “what is your ideal job and why you would be well-suited for it?“ [Name the topic participant did not previously do]. Just like before, I’ll give you 3 minutes alone to mentally prepare for the speech – so, just thinking about what you might want to say, not writing anything down. Then the judges will come in, and you’ll be asked to speak for as long as you are willing to. You can stop at any time by saying, “I’m done” or “I’d like to stop.” After 5 minutes, the judges will stop you. Do you have any questions? Okay, I’ll be back in 3 minutes to show you where to stand.

Leave room. Start pre-BAT data capture. Accept the data when it has completed (180 seconds). Return to room.

*Bring tablet with SUDS scale.

Before we start, I’d like you to record your current anxiety level, using the 0-100 point scale.

Show participant where to stand. Okay, I will get the judges now and they will tell you when to begin.

Judges enter. Judge A says, “As a reminder, you will be speaking about what you enjoy doing in your free time / what your ideal job is and why you would be well-suited for it. We will stop you at 5 minutes.”
Judge A says, “You may begin.” Judge B starts timer.

Make sure camera is on subject view. Start BAT_retest data capture. Accept the data when the participant finishes speaking (either 5 minutes or earlier).

If participant ends early:

If participant pauses for 5 seconds or asks to stop, Judge A asks: Would you like to continue or stop?
If participant says ‘yes’ to Judge A question, Judge B says, “Thank you. You can stop now. We will let ______ know that you’re done, and she’ll return in a moment.”

If participant goes the full time: Judge B says, “Thank you. It’s been 5 minutes; you may stop. We will let ______ know that you’re done, and she’ll return in a moment.”

Judges exit the room. Judges will independently rate the participant on SUDS from 0-3.

Experimenter re-enters.

*Bring tablet with 2 SUDS scales.

What is your current anxiety level, on a 0-100 scale? Hand participant SUDS scale. What was your highest anxiety level during the speech? Hand participant another SUDS scale. Was that at the beginning, middle, or end of the speech? Record on SUDS sheet.

10. Recovery period

Thanks for answering that. Now, I’ll give you a few minutes to sit and take a break before we move on to the next part of the study, since that task can be challenging. Just like before, try to remain as still as possible. I’ll come back in a few minutes.

Make sure camera is on participant. Start BAT_retest_recovery_# (120 seconds). Time 2 minutes.

Clean up control room during this time. Judges leave room to change.

11. Novel BAT

*Bring in tablet with SUDS.

What is your current anxiety level, on a 0-100 scale? Hand participant SUDS scale.

Thank you for doing that! What was the speech task like for you? Elicit response. If seems fitting, can add How did that compare to last week?

Now, I would like you to complete a new task. This time, I want you to imagine that someone you know well is getting married – maybe a close friend, a sibling, or a relative – and they asked you
to give a wedding toast. In a moment, I will ask you to actually give the toast. You will stand in this room right here, and imagine that you are standing in front of all of the family and friends at the reception. I will give you a glass to tap on to get everyone’s attention, and then you will speak about this person for as long as you’re willing to, up to 5 minutes. To help make the setting more realistic, we’re going to change the room slightly and give you a champagne glass to use for the toast. Only the wedding couple will be present in the room, but I would like you to imagine that 100 other people are listening. Again, you will be giving the wedding toast for as long as you are willing to, and as soon as you would like to stop, let us know and we will stop.

Do you have any questions?

First, I’ll give you 3 minutes alone to come up with someone and mentally prepare for the toast.

Leave room. Start pre-newBAT data capture. Accept the data when it has completed (180 seconds).

**TURN MONITOR AND SOUND OFF!!!!**

Return to room. I’d like you to record your current anxiety level, on the 0-100 point scale (hand participant tablet with SUDS scale).

Okay, now I’m going to change the room slightly. While I do this, I would like you to wait in this room next door. Unhook electrodes. Show participant to the next-door control room. Have them sit at desk by window and provide magazines. I will come get you in a few minutes.

Bring in the props and change the room with judges’ help. Once room is ready, judges wait in the main hallway (so that participant does not see judges).

Get participant. Re-connect electrodes (try to keep them from seeing the photograph on the wall). Show participant where to stand. Hand them the glass and a pen. I will now get the wedding couple and they will enter in a moment. When you are ready, tap on your glass to interrupt them and begin your toast, speaking for as long as you are willing to.

Experimenter leaves the room. Judges enter, holding champagne flutes and quietly chatting to each other. Judges sit at table without looking at participant. When participant taps on the glass, judges look up and listen to the toast.

Turn on monitor and volume (quickly). Make sure camera is on subject view.

Judge B starts timer when participant begins speaking. Experimenter starts newBAT data capture when participant begins speaking. Accept the data when the participant finishes speaking (either 5 minutes or earlier).

If participant ends early:

If participant pauses for 5 seconds, Judge A asks: Would you like to stop?
If participant says ‘yes’ to Judge A question, Judge A says, “Thank you. You can stop now. We will let _______ know that you’re done, and she’ll return in a moment.”

If participant goes the full time: Judge A says, “Thank you. It’s been 5 minutes; you may stop. We will let _______ know that you’re done, and she’ll return in a moment.”

Judges exit the room. Judges will independently rate the participant on SUDS from 0-3.

*Bring in tablet with 2 SUDS scales.

Experimenter re-enters.

*What is your current anxiety level, on a 0-100 scale? Hand participant tablet with SUDS scale.

What was your highest fear level during the toast? Record answer. Was that at the beginning, middle, or end of the toast? Record on tablet.

12. Recovery period

*Thanks for answering that. Now, I’ll give you a few minutes to sit and take a break before we move on to the next part of the study, since that task can be challenging. Just like before, try to remain as still as possible. I’ll come back in a few minutes.

Make sure camera is on participant. Start new_BAT_recovery_# (120 seconds). Time 2 minutes.

GET WINDOWS MOVIE MAKER READY FOR TST_post_newBAT_#

13. Think-aloud Task

*Bring in tablet with SUDS.

What is your current anxiety level, on a 0-100 scale? Hand participant SUDS scale.

Now I would like you to do a 1-minute think-aloud task, similar to what we did last time. For this, I’d like you to speak out loud for 1 minute about whatever thoughts you’re currently having, including those related to the speech you just completed; just whatever is going through your mind. Like before, I’ll turn the volume off while you’re doing this so that you feel comfortable being totally honest about whatever thoughts you might be having. Do you have any questions?

Go to the other room and re-state the main points of the think-aloud task: Now I would you like to speak out loud for 1 minute about any thoughts you are currently having, including those related to the speech you just completed. Just speak freely about whatever is going through your mind. I’ll turn off the volume so that you can be open and I’ll let you know when 1 minute is up. You may begin. Turn volume down, press record, and stop after 1 minute has passed. It has been 1 minute; you may stop.
14. Questionnaires

*Bring in tablet with follow-up_post questionnaires pulled up.

Next, I would like you to fill out a few more questionnaires. Please take your time and be as honest and thoughtful as possible; we’re almost done!

15. Homework assignment

Set up Windows Movie Maker for Homework_# and have it save in Intervention_# folder.

RECORD HOMEWORK.

*Bring in homework sheet matched to condition, worksheet copy, debriefing form, and yellow card.

*How was today? Briefly respond to participant answer. If makes sense, ask How did it compare to last week?

One of the most important things that you can do to help with your social anxiety is to continue to practice engaging in some feared activities throughout the week, just like we did today. The more you practice these feared activities, the more you’ll learn from them, and the easier it will be to do the activities in the future.

For the values condition: Knowing this, and thinking about what we did today and the worksheet we completed last week, what feared speaking activities could you try to do these next 2 weeks that would help move you towards some of the values that you talked about today? Try to come up with some things that will be challenging, but that you think you would be able to do if you pushed yourself.

For the money condition: Knowing this, and thinking about what we did today and the worksheet we completed last week, what feared speaking activities could you try to do these next 2 weeks in return for a monetary reward? Try to come up with some things that will be challenging, but that you think you would be able to do if you pushed yourself. Help participant come up with and develop idea. Would you be willing to put aside $1 – or whatever works best for you -- for each feared activity you try in the next 2 weeks?

For the control condition: Knowing this, and thinking about what we did today and the worksheet we completed last week, what feared speaking activities could you try to do these next 2 weeks that would help you start small and move up the “ladder”? Try to come up with some things that will be challenging, but that you think you would be able to do if you pushed yourself.

Help participant come up with 1-2 ideas, and help them identify enough specifics to make it feasible (e.g., if they say they want to start a conversation with someone in their class, help them come up with when they plan to do it). Have participant complete the front of the worksheet listing their homework commitment.
Briefly review the rest of the worksheet instructions by reviewing the instructions page and then explaining how to track each exposure. You’ll use this worksheet to track your exposures. Every time you engage in a feared speaking activity during the next two weeks, you’ll record the date, what you did, what your anxiety levels before, peak, and after were (which you should be good at now!), and how long it was (e.g., 30 seconds, 2 minutes, an hour).

I will send you a link to an online version of this homework tracking form and you can access it from your phone or computer. You can either record directly on the Qualtrics version of the form each time you complete an exposure during these next two weeks, using the computer or your phone, or you can record your exposures on the paper copy and then transfer the information to the online questionnaire at the end of the two weeks when you complete the follow-up questionnaire, whichever is easiest for you. If makes sense, can ask Do you have a sense of which method you’ll use?

We’ll also contact you in 2 weeks with a brief questionnaire that’s really important to fill out. After you fill this out, we will send you a $5 Starbucks gift card to thank you. Will you commit to filling this out when we send it? Any questions about that? Write out instructions on participant worksheet (1) tracking form – over next two weeks; 2) follow-up survey – emailed in 2 weeks)

16. One-week follow-up session conclusion

*Get yellow card/debriefing sheet and bring into room, if not done already.
Unhook participant from physio equipment.

Congratulations! You’ve completed the in-person part of the study.

Here is your final credit sheet for the study. You’ll receive a detailed feedback sheet after you complete the follow-up questionnaire, so that’s another reason to complete the questionnaire. Since the study is still going on, it’s important that you don’t provide too much detail if friends or people you know ask about it, since they might then tell someone who ends up participating in the study, and it’s important that everyone has the same level of surprise and same amount of time to prepare for the tasks. Does that make sense? You can just say that you answered questionnaires and did some challenging social tasks, but without providing detail about what the tasks were. If in the money condition: It’s also important that you don’t tell others about the payment part, since we don’t want that to influence people as they’re choosing which studies to participate in for their class credit. Does that make sense?

Any last questions before you go? It was great meeting you, have a good rest of your day!

17. Cleanup

• Clean up rooms
• Move files into their respective folders in the participant folder (i.e., move BAT_retest and newBAT videos into the BAT folder)
• Update all excel files (i.e., data entry)
• Send surveys
  o Check if need to send any 2 week survey reminders; update calendar with reminder 2 weeks out
  o Email and text link to Qualtrics homework tracking survey
• Give participant credit on Sona
• Backup onto portable hard drive
• Turn off computers, Mindware box, speakers (everything that was previously turned on)
• Lock doors (including door across from Joanna’s office)
Judges’ script

Initial Session: Behavioral Approach Task (BAT)
NOTE: Judges should be neutral and wear lab coats

Experimenter: Okay, the judges will enter now and tell you when to begin.

**Judges enter room and sit behind table**

Judge A: As a reminder, you will be speaking about what you enjoy doing in your free time / what your ideal job is and why would you be well-suited for it [Name only the topic that participant was randomized to], for as long as you are willing to do so.

Judge A: You may begin.

Judge B starts timer

If participant ends early:
If participant pauses for 5 seconds or asks to stop, Judge A asks: Would you like to continue or stop?
If participant says ‘yes’ to Judge A’s question, Judge B: Thank you. You can stop now. We will let Rebecca know that you’re done, and she’ll return in a moment.

If participant goes the full time:
Judge B: Thank you. It’s been 5 minutes; you may stop. We will let Rebecca know that you’re done, and she’ll return in a moment.

**Judges exit the room. Judges will independently rate the participant on SUDS from 0-3. Once this is complete, judges will wait in the lab room diagonal from Joanna Arch’s office during the intervention. They will return to the control room once they receive a text from the experimenter (sound should be off in control room)**
**Initial Session: Exposure #1** (NOTE: Judges should be friendly)

**When receive text from experimenter, line up in control room (sound is off). Experimenter will get judges from control room when ready. Judges will time each speech and experimenter will time the breaks between each exposure.**

Experimenter: *You can draw the first topic now. After participant draws topic: You will have 1 minute to mentally prepare.*
Experimenter: *Please record your current anxiety level using the tablet. Press the next button when you have finished.*
Experimenter (once participant has recorded their SUDS): *Ready.*

**Judge A:** Please begin speaking. **Judge B** starts timer.

**Judge B:** It’s been 1 minute, you can stop.
Experimenter: *You have 30 seconds to rest.*
Experimenter: *Please record your current anxiety level and your highest anxiety level during the speech using the tablet. Press the next button when you have finished.*

Experimenter: *Please draw your next topic. After participant draws topic: You will have 1 minute to mentally prepare.*
Experimenter: *Please record your current anxiety level.*
Experimenter (once participant has recorded their SUDS): *Ready.*

**Judge A:** Please begin speaking. **Judge B** starts timer.

**Judge B:** It’s been 1 minute, you can stop.
Experimenter: *You have 30 seconds to rest.*
Experimenter: *Please record your current anxiety level and your highest anxiety level during the speech.*

Experimenter: *Please draw your next topic. After participant draws topic: You will have 1 minute to mentally prepare.*
Experimenter: *Please record your current anxiety level.*
Experimenter (once participant has recorded their SUDS): *Ready.*

**Judge A:** Please begin speaking. **Judge B** starts timer.

**Judge B:** It’s been 1 minute, you can stop.
Experimenter: *You have 30 seconds to rest.*
Experimenter: *Please record your current anxiety level and your highest anxiety level during the speech.*

Experimenter: *Please draw your next topic. After participant draws topic: You will have 1 minute to mentally prepare.*
Experimenter: *Please record your current anxiety level.*
Experimenter (once participant has recorded their SUDS): *Ready.*

**Judge A:** Please begin speaking. **Judge B** starts timer.

**Judge B:** It’s been 1 minute, you can stop.
Experimenter: *You have 30 seconds to rest.*
Experimenter: *Please record your current anxiety level and your highest anxiety level during the speech.*
Experimenter: *Please draw your final topic.* After participant draws topic: *You will have 1 minute to mentally prepare.*

Experimenter: *Please record your current anxiety level.*

Experimenter (once participant has recorded their SUDS): *Ready.*

**Judge A:** *Please begin speaking.* **Judge B** starts timer.

**Judge B:** *It’s been 1 minute, you can stop. ____ will be in shortly.*

Experimenter: *Please record your current anxiety level and your highest anxiety level during the speech.*

**If participant stops speaking early, prompt ‘please continue speaking if you can’ or ‘Feel free to repeat what you already said’**

Judges will leave the room. Judges will independently rate the participant on SUDS from 0-3.
**Initial Session: Exposure #2 (NOTE: Judges should be friendly)**

** Stay in the control room. After the rest period is over, make sure volume is off. Experimenter will get judges from control room when ready. Judges will time each speech and experimenter will time the breaks between each exposure.

Experimenter: You can draw the first topic now. After participant draws topic: You will have 1 minute to mentally prepare.
Experimenter: Please record your current anxiety level using the tablet. Press the next button when you have finished.
Experimenter (once participant has recorded their SUDS): Ready.
Judge A: Please begin speaking. Judge B starts timer.
Judge B: It’s been 2 minutes, you can stop.
Experimenter: You have 30 seconds to rest.
Experimenter: Please record your current anxiety level and your highest anxiety level during the speech using the tablet. Press the next button when you have finished.

Experimenter: Please draw your next topic. After participant draws topic: You will have 1 minute to mentally prepare.
Experimenter: Please record your current anxiety level.
Experimenter (once participant has recorded their SUDS): Ready.
Judge A: Please begin speaking. Judge B starts timer.
Judge B: It’s been 2 minutes, you can stop.
Experimenter: You have 30 seconds to rest.
Experimenter: Please record your current anxiety level and your highest anxiety level during the speech.

Experimenter: Please draw your next topic. After participant draws topic: You will have 1 minute to mentally prepare.
Experimenter: Please record your current anxiety level.
Experimenter (once participant has recorded their SUDS): Ready.
Judge A: Please begin speaking. Judge B starts timer.
Judge B: It’s been 2 minutes, you can stop.
Experimenter: You have 30 seconds to rest.
Experimenter: Please record your current anxiety level and your highest anxiety level during the speech.

Experimenter: Please draw your next topic. After participant draws topic: You will have 1 minute to mentally prepare.
Experimenter: Please record your current anxiety level.
Experimenter (once participant has recorded their SUDS): Ready.
Judge A: Please begin speaking. Judge B starts timer.
Judge B: It’s been 2 minutes, you can stop.
Experimenter: You have 30 seconds to rest.
Experimenter: Please record your current anxiety level and your highest anxiety level during the speech.
Experimenter: Please draw your final topic. After participant draws topic: You will have 1 minute to mentally prepare.
Experimenter: Please record your current anxiety level.
Experimenter (once participant has recorded their SUDS): Ready.
**Judge A:** Please begin speaking. **Judge B** starts timer.
**Judge B:** It’s been 2 minutes, you can stop. ____ will be in shortly.
Experimenter: Please record your current anxiety level and your highest anxiety level during the speech.

**If participant stops speaking early, prompt ‘please continue speaking if you can’ or ‘Feel free to repeat what you already said’**

Judges will leave the room. Judges will independently rate the participant on SUDS from 0-3. Judges role in initial session is now complete.
Follow-up Session: BAT Re-test
NOTE: Judges should be neutral and wear lab coats

Experimenter: Okay, the judges will enter now and tell you when to begin.

**Judges enter room and sit behind table**

**Judge A:** As a reminder, you will be speaking about what you enjoy doing in your free time / what your ideal job is and why would you be well-suited for it [Name whichever topic participant has not yet completed], for as long as you are willing to do so.

**Judge A:** You may begin.

**Judge B** starts timer**

If participant ends early:
If participant pauses for 5 seconds or asks to stop, **Judge A** asks: Would you like to continue or stop?
If participant says 'yes' to Judge A’s question, **Judge B:** Thank you. You can stop now. We will let ______ know that you’re done, and she’ll return in a moment.

If participant goes the full time:
**Judge B:** Thank you. It’s been 5 minutes; you may stop. We will let ______ know that you’re done, and she’ll return in a moment.

Judges exit the room. Judges will independently rate the participant on SUDS from 0-3. Judges remain in the control room.
Follow-up Session: Novel BAT  
NOTE: Judges should be neutral

Experimenter: Okay, now I’m going to change the room slightly. While I do this, I would like you to wait in this room next door.

**Wait in main hallway until experimenter finishes putting participant in the control room.**

Bring in the props, put up the partition, and change the room slightly. Once room is ready, judges wait in the control room.

Experimenter: I will now get the wedding couple and they will enter in a moment. When you are ready, tap on your glass to interrupt them and begin your toast, speaking for as long as you are willing to.

**Experimenter leaves the room. Judges enter, holding champagne flutes and quietly chatting to each other. Judges sit at table without looking at participant. When participant taps on the glass, judges look up and listen to the toast**

**Judge B** starts timer when participant begins speaking.

If participant ends early:
If participant pauses for 5 seconds or asks to stop, **Judge A** asks: Would you like to continue or stop?  
If participant says ‘yes’ to Judge A’s question, **Judge B**: Thank you. You can stop now. We will let ______ know that you’re done, and she’ll return in a moment.

If participant goes the full time:  
**Judge B** says, “Thank you. It’s been 5 minutes; you may stop. We will let ______ know that you’re done, and she’ll return in a moment.”

Judges exit the room. Judges will independently rate the participant on SUDS from 0-3.
Values Intervention Worksheet

1) Briefly describe your current social fears or difficulties.

2) In what ways, specifically, are these fears and difficulties affecting your life?

3) Values represent what you care about and want to stand for in life, what guides who you want to be and what you want to do in life. Values can help motivate us.

Values are not something that you think you should care about, or something that your parents or friends or teachers care about; values are what resonates with you.

Values also are not goals. They aren’t items that can be checked off or accomplished (like getting an A on a test). Instead, they’re closer to guiding principles (like learning).

Sometimes it helps to think of values as being similar to a compass. If you listen to them, they help guide your life direction, but they aren’t a destination that can ever fully be reached.

There are an endless number of values, and everyone has different ones that most resonate with them. Examples of some commonly held values include (but definitely are not limited to!): creativity, learning, love, family, ambition, connecting with others, stability, independence, spontaneity, humor, caring, justice, cultivating joy, making a difference, health, fun, growing, self-expression, respect, challenge, being active

Based on this description, what are some of your top values?

__________________  ____________________  ____________________
__________________  ____________________  ____________________

4) Look back at your answers to Questions 1 and 2. What values are being affected by the social fears that you described? In what ways?

5) Make an X in each area of the dartboard, to represent where you stand today.
6) How would being able to engage in these avoided or feared social situations move you towards your values? Be as specific as possible.

Would you be willing to challenge yourself today for the sake of moving towards your values? (Circle one)

**NO**  **YES**
Values Cards for Values Intervention

<table>
<thead>
<tr>
<th>Valuing Ourselves</th>
<th>Seeing possibilities</th>
<th>Moving</th>
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<tbody>
<tr>
<td>Feeling pleasure</td>
<td>Giving thanks</td>
<td>Finding peace</td>
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<tr>
<td>Asking for help</td>
<td>Understanding</td>
<td>Accepting yourself</td>
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Money Intervention Worksheet

1) Briefly describe your current social fears or difficulties.

2) When we’re having a hard time doing something unpleasant, such as engaging in these feared social situations, it can be helpful to use a tangible reward (such as money) to motivate ourselves.

There are many examples of this, as most people have used this strategy in some way at some point in their life. Common examples of this include: getting an allowance for doing chores, using an app that pays you each time you go to the gym (or an app that charges you each time you skip), or sticking with a boring summer job for the paychecks.

Describe a time when you (or someone you know) successfully used this strategy.

3) What was most helpful about using a reward like money to motivate you?

4) How could you imagine applying this strategy to tackling your social fears?

Would you be willing to apply this idea and challenge yourself today in order to earn money? (Circle one)

NO YES
5) How do you imagine that views on money have changed since your parents’ generation?

6) What types of currency have you used? How has this affected your view of US currency?

7) Do you usually pay for things using cash, check, or credit card? Why?

8) Would you describe yourself as a spender or a saver? How so?
Control Intervention Worksheet ("Practice ladder")

1) Briefly describe your current social fears or difficulties.

2) When we’re having a hard time doing something unpleasant, such as engaging in these feared social situations, it can be helpful to practice doing it by starting with smaller, more manageable situations and working our way up to the harder situations, sort of like climbing up a ladder one rung at a time.

There are many examples of this, as most people have used this strategy in some way at some point in their life. Common examples of this include: starting with lighter weights at the gym and working up to heavier ones to get stronger, learning how to drive by practicing in a parking lot before trying to go on the highway, and practicing a speech in front of a few people before giving it to the entire class.

Does this strategy make sense to you?

Would you be willing to apply this idea and challenge yourself today in order to work towards the more challenging situations? (Circle one)

NO YES
3) When do you do your best studying or working (e.g., time of day, time of week, location)?

4) What makes this the best time?

5) How do you prefer to study (e.g., re-read notes, take practice quizzes, teach others)?

6) Do you prefer to study alone or in groups? Why?

7) Do you prefer to take notes by hand or on the computer? Why?

8) Who was your favorite teacher? Why did their teaching style work well for you?

9) Who was your least favorite teacher? Why did their teaching style not work well for you?

10) How have your studying habits changed since high school, if at all?
Values Condition Homework

This week, I commit to ________________________________________________

____________________________________________________________________

____________________________________________________________________

____________________________________________________________________

____________________________________________________________________

By challenging myself in this way, I will be moving towards my values of ________________

____________________________________________________________________

____________________________________________________________________

____________________________________________________________________

____________________________________________________________________
**Instructions**

Please practice the skills you learned today on your own during the next 2 weeks by engaging in speaking situations that are challenging for you and that you do not normally push yourself to do. Please try to practice as many times throughout the week as possible. You do not have to fill all the spots, just try to practice as much as you can. Be creative – you do not have to stick to the examples provided, just use them as a guideline and try to practice a variety of speaking situations that make you anxious.

1. Please record each of the speaking situations that you do each day for the next 2 weeks - please record as soon as possible after completing the exercise.
2. Use the recording form to fill in your anxiety levels on a scale from 0-100 before, during, and after the exposure.
3. Record the amount of time you were in the situation.
4. Record how much you value the activity -- that is, how much engaging in that activity moved you towards your values or was in line with your values.

It is important for you to be as honest and accurate as possible when completing this worksheet, even if you did not complete as much as you had intended.

**Example Types of Speaking Situations:**

1. **Initiate a social interaction with someone you know but are shy around**; for example, invite an acquaintance to a group activity or call a friend or family member who you often feel intimidated to call.
2. **Speak up in a meeting or classroom environment**; if you do not have any classes or meetings this week, try to speak up in any group setting you might be in; take part in a group activity that you normally avoid; assert yourself in a public situation
3. **Initiate a conversation with a stranger**; even if brief, for example, a cashier, someone in line at the store, someone in your office or school environment, etc.
Recording Sheet

PRACTICE 1
1. Day/Time ______________________
2. What was the situation/what did you do?
____________________________________________________________________
____________________________________________________________________
Pre Anxiety (0-100) | Peak Anxiety (0-100) | Post Anxiety (0-100) | Time (minutes) | Value of activity (0-100)
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PRACTICE 2
1. Day/Time ______________________
2. What was the situation/what did you do?
____________________________________________________________________
____________________________________________________________________
Pre Anxiety (0-100) | Peak Anxiety (0-100) | Post Anxiety (0-100) | Time (minutes) | Value of activity (0-100)
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PRACTICE 3
1. Day/Time ______________________
2. What was the situation/what did you do?
____________________________________________________________________
____________________________________________________________________
Pre Anxiety (0-100) | Peak Anxiety (0-100) | Post Anxiety (0-100) | Time (minutes) | Value of activity (0-100)
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PRACTICE 4
1. Day/Time ______________________
2. What was the situation/what did you do?
____________________________________________________________________
____________________________________________________________________
Pre Anxiety (0-100) | Peak Anxiety (0-100) | Post Anxiety (0-100) | Time (minutes) | Value of activity (0-100)
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</table>
### PRACTICE 5
1. **Day/Time** ____________________
2. **What was the situation/what did you do?**

<table>
<thead>
<tr>
<th>Pre Anxiety (0-100)</th>
<th>Peak Anxiety (0-100)</th>
<th>Post Anxiety (0-100)</th>
<th>Time (minutes)</th>
<th>Value of activity (0-100)</th>
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### PRACTICE 6
1. **Day/Time** ____________________
2. **What was the situation/what did you do?**

<table>
<thead>
<tr>
<th>Pre Anxiety (0-100)</th>
<th>Peak Anxiety (0-100)</th>
<th>Post Anxiety (0-100)</th>
<th>Time (minutes)</th>
<th>Value of activity (0-100)</th>
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</table>

### PRACTICE 7
1. **Day/Time** ____________________
2. **What was the situation/what did you do?**

<table>
<thead>
<tr>
<th>Pre Anxiety (0-100)</th>
<th>Peak Anxiety (0-100)</th>
<th>Post Anxiety (0-100)</th>
<th>Time (minutes)</th>
<th>Value of activity (0-100)</th>
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</table>

### PRACTICE 8
1. **Day/Time** ____________________
2. **What was the situation/what did you do?**

<table>
<thead>
<tr>
<th>Pre Anxiety (0-100)</th>
<th>Peak Anxiety (0-100)</th>
<th>Post Anxiety (0-100)</th>
<th>Time (minutes)</th>
<th>Value of activity (0-100)</th>
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</table>
PRACTICE 9
3. Day/Time ______________________
4. What was the situation/what did you do?
________________________________________________________________________

<table>
<thead>
<tr>
<th>Pre Anxiety (0-100)</th>
<th>Peak Anxiety (0-100)</th>
<th>Post Anxiety (0-100)</th>
<th>Time (minutes)</th>
<th>Value of activity (0-100)</th>
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PRACTICE 10
3. Day/Time ______________________
4. What was the situation/what did you do?
________________________________________________________________________

<table>
<thead>
<tr>
<th>Pre Anxiety (0-100)</th>
<th>Peak Anxiety (0-100)</th>
<th>Post Anxiety (0-100)</th>
<th>Time (minutes)</th>
<th>Value of activity (0-100)</th>
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PRACTICE 11
3. Day/Time ______________________
4. What was the situation/what did you do?
________________________________________________________________________

<table>
<thead>
<tr>
<th>Pre Anxiety (0-100)</th>
<th>Peak Anxiety (0-100)</th>
<th>Post Anxiety (0-100)</th>
<th>Time (minutes)</th>
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</table>

PRACTICE 12
3. Day/Time ______________________
4. What was the situation/what did you do?
________________________________________________________________________

<table>
<thead>
<tr>
<th>Pre Anxiety (0-100)</th>
<th>Peak Anxiety (0-100)</th>
<th>Post Anxiety (0-100)</th>
<th>Time (minutes)</th>
<th>Value of activity (0-100)</th>
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</table>
Money Condition Homework

This week, I commit to ____________________________________________

_________________________________________________________________

_________________________________________________________________

_________________________________________________________________

_________________________________________________________________

By challenging myself in this way, I will earn ________________________

_________________________________________________________________

_________________________________________________________________

_________________________________________________________________
Instructions

Please practice the skills you learned today on your own during the next 2 weeks by engaging in speaking situations that are challenging for you and that you do not normally push yourself to do. Please try to practice as many times throughout the week as possible. You do not have to fill all the spots, just try to practice as much as you can. Be creative – you do not have to stick to the examples provided, just use them as a guideline and try to practice a variety of speaking situations that make you anxious.

1. Please record each of the speaking situations that you do each day for the next 2 weeks - please record as soon as possible after completing the exercise.
2. Use the recording form to fill in your anxiety levels on a scale from 0-100 before, during, and after the exposure.
3. Record the amount of time you were in the situation.
4. Record how much you will earn from completing the activity (e.g., if you commit to setting aside $1 for each situation, then you would write “$1”)

It is important for you to be as honest and accurate as possible when completing this worksheet, even if you did not complete as much as you had intended.

Example Types of Speaking Situations:

4. Initiate a social interaction with someone you know but are shy around; for example, invite an acquaintance to a group activity or call a friend or family member who you often feel intimidated to call.

5. Speak up in a meeting or classroom environment; if you do not have any classes or meetings this week, try to speak up in any group setting you might be in; take part in a group activity that you normally avoid; assert yourself in a public situation

6. Initiate a conversation with a stranger; even if brief, for example, a cashier, someone in line at the store, someone in your office or school environment, etc.
Recording Sheet

PRACTICE 1
3. Day/Time __________________
4. What was the situation/what did you do?

<table>
<thead>
<tr>
<th>Pre Anxiety (0-100)</th>
<th>Peak Anxiety (0-100)</th>
<th>Post Anxiety (0-100)</th>
<th>Time (minutes)</th>
<th>Amount earned</th>
</tr>
</thead>
</table>

PRACTICE 2
3. Day/Time __________________
4. What was the situation/what did you do?

<table>
<thead>
<tr>
<th>Pre Anxiety (0-100)</th>
<th>Peak Anxiety (0-100)</th>
<th>Post Anxiety (0-100)</th>
<th>Time (minutes)</th>
<th>Amount earned</th>
</tr>
</thead>
</table>

PRACTICE 3
3. Day/Time __________________
4. What was the situation/what did you do?

<table>
<thead>
<tr>
<th>Pre Anxiety (0-100)</th>
<th>Peak Anxiety (0-100)</th>
<th>Post Anxiety (0-100)</th>
<th>Time (minutes)</th>
<th>Amount earned</th>
</tr>
</thead>
</table>

PRACTICE 4
3. Day/Time __________________
4. What was the situation/what did you do?

<table>
<thead>
<tr>
<th>Pre Anxiety (0-100)</th>
<th>Peak Anxiety (0-100)</th>
<th>Post Anxiety (0-100)</th>
<th>Time (minutes)</th>
<th>Amount earned</th>
</tr>
</thead>
</table>
PRACTICE 5
5. Day/Time ________________________
6. What was the situation/what did you do?

________________________________________________________________________

RESPONSE

<table>
<thead>
<tr>
<th>Pre Anxiety (0-100)</th>
<th>Peak Anxiety (0-100)</th>
<th>Post Anxiety (0-100)</th>
<th>Time (minutes)</th>
<th>Amount earned</th>
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</tbody>
</table>

PRACTICE 6
5. Day/Time ________________________
6. What was the situation/what did you do?

________________________________________________________________________

RESPONSE

<table>
<thead>
<tr>
<th>Pre Anxiety (0-100)</th>
<th>Peak Anxiety (0-100)</th>
<th>Post Anxiety (0-100)</th>
<th>Time (minutes)</th>
<th>Amount earned</th>
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</tbody>
</table>

PRACTICE 7
5. Day/Time ________________________
6. What was the situation/what did you do?

________________________________________________________________________

RESPONSE

<table>
<thead>
<tr>
<th>Pre Anxiety (0-100)</th>
<th>Peak Anxiety (0-100)</th>
<th>Post Anxiety (0-100)</th>
<th>Time (minutes)</th>
<th>Amount earned</th>
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</table>

PRACTICE 8
5. Day/Time ________________________
6. What was the situation/what did you do?

________________________________________________________________________

RESPONSE

<table>
<thead>
<tr>
<th>Pre Anxiety (0-100)</th>
<th>Peak Anxiety (0-100)</th>
<th>Post Anxiety (0-100)</th>
<th>Time (minutes)</th>
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</tbody>
</table>
PRACTICE 9
7. Day/Time __________________________
8. What was the situation/what did you do?

<table>
<thead>
<tr>
<th>Pre Anxiety (0-100)</th>
<th>Peak Anxiety (0-100)</th>
<th>Post Anxiety (0-100)</th>
<th>Time (minutes)</th>
<th>Amount earned</th>
</tr>
</thead>
</table>

PRACTICE 10
7. Day/Time __________________________
8. What was the situation/what did you do?

<table>
<thead>
<tr>
<th>Pre Anxiety (0-100)</th>
<th>Peak Anxiety (0-100)</th>
<th>Post Anxiety (0-100)</th>
<th>Time (minutes)</th>
<th>Amount earned</th>
</tr>
</thead>
</table>

PRACTICE 11
7. Day/Time __________________________
8. What was the situation/what did you do?

<table>
<thead>
<tr>
<th>Pre Anxiety (0-100)</th>
<th>Peak Anxiety (0-100)</th>
<th>Post Anxiety (0-100)</th>
<th>Time (minutes)</th>
<th>Amount earned</th>
</tr>
</thead>
</table>

PRACTICE 12
7. Day/Time __________________________
8. What was the situation/what did you do?

<table>
<thead>
<tr>
<th>Pre Anxiety (0-100)</th>
<th>Peak Anxiety (0-100)</th>
<th>Post Anxiety (0-100)</th>
<th>Time (minutes)</th>
<th>Amount earned</th>
</tr>
</thead>
</table>
Control Condition Homework ("Practice ladder")

This week, I commit to ____________________________________________________________

______________________________________________________________________________

______________________________________________________________________________

______________________________________________________________________________

______________________________________________________________________________

By challenging myself in this way, I will be working up to ____________________________

______________________________________________________________________________

______________________________________________________________________________

______________________________________________________________________________
Instructions

Please practice the skills you learned today on your own during the next 2 weeks by engaging in speaking situations that are challenging for you and that you do not normally push yourself to do. Please try to practice as many times throughout the week as possible. You do not have to fill all the spots, just try to practice as much as you can. Be creative – you do not have to stick to the examples provided, just use them as a guideline and try to practice a variety of speaking situations that make you anxious.

1. Please record each of the speaking situations that you do each day for the next 2 weeks - please record as soon as possible after completing the exercise.
2. Use the recording form to fill in your anxiety levels on a scale from 0-100 before, during, and after the exposure.
3. Record the amount of time you were in the situation.

It is important for you to be as honest and accurate as possible when completing this worksheet, even if you did not complete as much as you had intended.

Example Types of Speaking Situations:

7. **Initiate a social interaction with someone you know but are shy around;** for example, invite an acquaintance to a group activity or call a friend or family member who you often feel intimidated to call.

8. **Speak up in a meeting or classroom environment;** if you do not have any classes or meetings this week, try to speak up in any group setting you might be in; take part in a group activity that you normally avoid; assert yourself in a public situation

9. **Initiate a conversation with a stranger:** even if brief, for example, a cashier, someone in line at the store, someone in your office or school environment, etc.
Recording Sheet

PRACTICE 1
5. Day/Time ____________________
6. What was the situation/what did you do?
________________________________________________________________________
________________________________________________________________________

<table>
<thead>
<tr>
<th>Pre Anxiety (0-100)</th>
<th>Peak Anxiety (0-100)</th>
<th>Post Anxiety (0-100)</th>
<th>Time (minutes)</th>
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</table>

PRACTICE 2
5. Day/Time ____________________
6. What was the situation/what did you do?
________________________________________________________________________
________________________________________________________________________

<table>
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<tr>
<th>Pre Anxiety (0-100)</th>
<th>Peak Anxiety (0-100)</th>
<th>Post Anxiety (0-100)</th>
<th>Time (minutes)</th>
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</thead>
</table>

PRACTICE 3
5. Day/Time ____________________
6. What was the situation/what did you do?
________________________________________________________________________
________________________________________________________________________

<table>
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<tr>
<th>Pre Anxiety (0-100)</th>
<th>Peak Anxiety (0-100)</th>
<th>Post Anxiety (0-100)</th>
<th>Time (minutes)</th>
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</table>

PRACTICE 4
5. Day/Time ____________________
6. What was the situation/what did you do?
________________________________________________________________________
________________________________________________________________________

<table>
<thead>
<tr>
<th>Pre Anxiety (0-100)</th>
<th>Peak Anxiety (0-100)</th>
<th>Post Anxiety (0-100)</th>
<th>Time (minutes)</th>
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</thead>
</table>
PRACTICE 5
9. Day/Time ____________________
10. What was the situation/what did you do?

<table>
<thead>
<tr>
<th>Pre Anxiety (0-100)</th>
<th>Peak Anxiety (0-100)</th>
<th>Post Anxiety (0-100)</th>
<th>Time (minutes)</th>
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</table>

PRACTICE 6
9. Day/Time ____________________
10. What was the situation/what did you do?

<table>
<thead>
<tr>
<th>Pre Anxiety (0-100)</th>
<th>Peak Anxiety (0-100)</th>
<th>Post Anxiety (0-100)</th>
<th>Time (minutes)</th>
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</table>

PRACTICE 7
9. Day/Time ____________________
10. What was the situation/what did you do?

<table>
<thead>
<tr>
<th>Pre Anxiety (0-100)</th>
<th>Peak Anxiety (0-100)</th>
<th>Post Anxiety (0-100)</th>
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</table>

PRACTICE 8
9. Day/Time ____________________
10. What was the situation/what did you do?

<table>
<thead>
<tr>
<th>Pre Anxiety (0-100)</th>
<th>Peak Anxiety (0-100)</th>
<th>Post Anxiety (0-100)</th>
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</tbody>
</table>
PRACTICE 9
11. Day/Time ________________
12. What was the situation/what did you do?

<table>
<thead>
<tr>
<th>Pre Anxiety (0-100)</th>
<th>Peak Anxiety (0-100)</th>
<th>Post Anxiety (0-100)</th>
<th>Time (minutes)</th>
</tr>
</thead>
</table>

PRACTICE 10
11. Day/Time ________________
12. What was the situation/what did you do?

<table>
<thead>
<tr>
<th>Pre Anxiety (0-100)</th>
<th>Peak Anxiety (0-100)</th>
<th>Post Anxiety (0-100)</th>
<th>Time (minutes)</th>
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</thead>
</table>

PRACTICE 11
11. Day/Time ________________
12. What was the situation/what did you do?

<table>
<thead>
<tr>
<th>Pre Anxiety (0-100)</th>
<th>Peak Anxiety (0-100)</th>
<th>Post Anxiety (0-100)</th>
<th>Time (minutes)</th>
</tr>
</thead>
</table>

PRACTICE 12
11. Day/Time ________________
12. What was the situation/what did you do?

<table>
<thead>
<tr>
<th>Pre Anxiety (0-100)</th>
<th>Peak Anxiety (0-100)</th>
<th>Post Anxiety (0-100)</th>
<th>Time (minutes)</th>
</tr>
</thead>
</table>
FU1 Debriefing Form

Thank you so much for participating in this study! During the study, you answered questionnaires about your thoughts, feelings, and social anxiety, and your physiological data was captured using electrodes. You completed a brief worksheet and you participated in several challenging tasks, including several public speaking tasks.

This study is trying to identify different ways to deliver one of the main treatments for social anxiety (exposure therapy) to improve its effectiveness. You were randomized to one of three groups, and so your data will be compared to that of the other groups to better understand how different types of initial treatment delivery (i.e., how exposure treatment is introduced) affects the treatment’s effectiveness.

We will contact you in approximately 2 weeks via email to follow up. If you have any questions or concerns before then, you are welcome to contact us by phone at 720-514-9086 or by email at intervention-study@colorado.edu.
FU2 Debriefing Form

This study was designed to help us learn more about how to improve our treatments for social anxiety. Right now, the main treatment for social anxiety is called cognitive-behavioral therapy, and a primary part of this therapy involves exposure to feared situations. Just like we talked about during the study, in order for your social fears to have less of an impact on your life, it is important to confront, or expose yourself, to the feared situations. That way, there can be new learning about what the situations mean and how you’re able to handle them. Since exposures can be really challenging for people, we were looking at ways to improve people’s willingness to try the exposures. We were also looking at ways to improve the learning that happens in each exposure – how to make the learning from one exposure stick with you in other situations. To do that, we compared three different exercises before the exposure: an exercise that helped people learn more about their values and what they care about in life, an exercise that tied exposures to monetary rewards, and a control exercise that provided the usual explanation for exposures as easier tasks that help you work towards harder ones. Each participant was assigned to one of these three conditions and filled out a worksheet linked to their condition.

This was a really brief version of exposure therapy, that doesn’t cover a lot of things discussed in actual, ongoing therapy lasting over several months. Because of this, and because some degree of social fears was a requirement for the study, we like to provide a list of resources to everyone who participates so that they can continue to seek treatment after this if they wish to do so. Below, we have included a list of CU and community resources in the area. You are also welcome to contact us at any time in the future if you have questions about the study or about accessing any of these resources.

Counseling Resources: CU/Boulder Area

1. UCB Counseling & Psychological Services: (303) 492-6766 – Offers free walk-in or call-in counseling services to UCB students.

2. UCB Psychological Health & Psychiatry at Wardenburg Health Center: (303) 492-5654 – Provides psychological services to students, faculty and staff at the University of Colorado.

3. Rainy Clinic: (303) 492-5177; psych.colorado.edu/~clinical/raimy.html. Psychotherapy provided on a sliding-fee scale by doctoral students at CU-Boulder.

4. Mental Health Partners (303) 413-6263 to request services. (303) 447-1665 for psychiatric emergencies. See http://www.mhpcolorado.org/Home.aspx. Non-profit community health agency with low-cost services and multiple office locations around Boulder County.

Appendix B: Questionnaires
Screening Questionnaire

NOTE: Participants who were screened as part of the subject pool prior to viewing the study received the following questions embedded into a broader university screener. Below is the version used for those who were separately screened on Qualtrics.

---

Start of Block: Consent Block

Thank you for your interest in this study. The following survey will be used to determine study eligibility. The survey will take about 3-5 minutes to complete.

You will be asked several questions in this survey, including questions about feelings and thoughts you might be experiencing. Some of the questions may make you uncomfortable; you do not have to answer any question that you would not like to answer, but without answers to these questions, you will not be eligible to participate in the study.

All information you share in the screening will remain confidential within the research team. Your responses will be de-personalized and filed under a unique ID number and will not be associated with your name. If you do not enroll in this study, the information collected during this screening will be kept in order to note overall reasons for study exclusion, but there will be no way for anyone to link that information to you.

If you are eligible and choose to participate in the study, you can sign up for a study slot on the Sona Subject Pool website (if completing for subject pool credit) or Paid Sona website (if completing for payment). You will then be directed to complete the second online survey prior to the in-person part of the study.

I can be reached by email at intervention-study@colorado.edu or by phone at 720-514-9086. I am also required to give you the number of University of Colorado Boulder IRB, the Ethics Board that oversees our research: it is (303) 735-3702, in case you have any questions or concerns for them.

Please note that you must be at least 18 to participate in this study and be fluent in English. You must be willing to respond honestly to the questions we will ask. By continuing and completing the survey and answering the following questions (and answering the second set of questions, if eligible and interested), you are indicating that you are at least 18 years old, answering honestly, and that you agree to participate in this research.

☐ I agree with the above statement. I would like to continue to the screening questions.

☐ I disagree with the above statement OR choose not to continue to the screening questions.

---

End of Block: Consent Block

---

Start of Block: Directions Block
The following questions will be used to determine whether you may be eligible for this study. You are in NO way agreeing to participate in this study if you agree to provide information at this time. Please answer as honestly and accurately as possible.

End of Block: Directions Block

Start of Block: SPIN (Inclusion criteria)

Please indicate how much the following problems have bothered you during the past week. Mark only one box for each problem, and be sure to answer all items.

<table>
<thead>
<tr>
<th>Problem</th>
<th>Not at all</th>
<th>A little bit</th>
<th>Somewhat</th>
<th>Very much</th>
<th>Extremely</th>
</tr>
</thead>
<tbody>
<tr>
<td>1) I am afraid of people in authority</td>
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<tr>
<td>2) I am bothered by blushing in front of people</td>
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<tr>
<td>3) Parties and social events scare me</td>
<td></td>
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<td></td>
<td></td>
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<tr>
<td>4) I avoid talking to people I don't know</td>
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<tr>
<td>5) Being criticized scares me a lot</td>
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<td></td>
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<td></td>
</tr>
<tr>
<td>6) Fear of embarrassment causes me to avoid doing things or speaking to people</td>
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<td></td>
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</tr>
<tr>
<td>7) Sweating in front of people causes me distress</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8) I avoid going to parties</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>9) I avoid activities in which I am the centre of attention</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10) Talking to strangers scares me</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>11) I avoid having to give speeches</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
### SPIN (Inclusion criteria)

**12) I would do anything to avoid being criticized**

<table>
<thead>
<tr>
<th>Fear or anxiety</th>
<th>Avoidance</th>
</tr>
</thead>
<tbody>
<tr>
<td>0 = None</td>
<td>1 = Never (0%)</td>
</tr>
<tr>
<td>1 = Mild</td>
<td>1 = Occasionally (1-33%)</td>
</tr>
<tr>
<td>2 = Moderate</td>
<td>2 = Often (33-67%)</td>
</tr>
<tr>
<td>3 = Severe</td>
<td>3 = Usually (67-100%)</td>
</tr>
</tbody>
</table>

**13) Heart palpitations bother me when I am around people**

**14) I am afraid of doing things when people might be watching**

**15) Being embarrassed or looking stupid is among my worst fears**

**16) I avoid speaking to anyone in authority**

**17) Trembling or shaking in front of others is distressing to me**

End of Block: SPIN (Inclusion criteria)

### LSAS question (Inclusion criteria)

**Please rate how anxious or fearful you feel in the following situation and how often you avoid the situation.**

<table>
<thead>
<tr>
<th>Situation</th>
<th>Fear or anxiety</th>
<th>Avoidance</th>
</tr>
</thead>
<tbody>
<tr>
<td>1) Acting, performing or giving a talk in front of an audience</td>
<td>0 = None</td>
<td>1 = Never (0%)</td>
</tr>
<tr>
<td></td>
<td>1 = Mild</td>
<td>1 = Occasionally (1-33%)</td>
</tr>
<tr>
<td></td>
<td>2 = Moderate</td>
<td>2 = Often (33-67%)</td>
</tr>
<tr>
<td></td>
<td>3 = Severe</td>
<td>3 = Usually (67-100%)</td>
</tr>
</tbody>
</table>

End of Block: LSAS question (Inclusion criteria)

### PHQ-9 (Exclusion criteria)

**Over the past 2 weeks, how often have you been bothered by any of the following problems?**

<table>
<thead>
<tr>
<th>Problem</th>
<th>Not at all</th>
<th>Several days</th>
<th>More than half the days</th>
<th>Nearly every day</th>
</tr>
</thead>
<tbody>
<tr>
<td>12)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>13)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>14)</td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>15)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>16)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>17)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
If you checked off any problems, how difficult have these problems made it for you to do your work, take care of things at home, or get along with other people?

- [ ] Not difficult at all
- [ ] Somewhat difficult
- [ ] Very difficult
- [ ] Extremely difficult

---

End of Block: PHQ-9 (Exclusion criteria)

Start of Block: Additional exclusion criteria
1) Do you suffer from or have you been diagnosed as having any of the following medical conditions?
   Heart Diseases, Seizure/epilepsy, Other neurological disorders, High blood pressure, Low blood pressure, Hyperthyroidism, Hypothyroidism, Respiratory diseases/asthma (in adulthood), physical disabilities
   - Yes
   - No

2) On average, how many times per week do you use marijuana?
   - 0
   - <1
   - 1-3
   - 4+

3) On average, how many days per week do you drink alcohol?
   - 0
   - <1
   - 1-3
   - 4+
4) On average, how many alcoholic drinks per week do you have?

- 0
- 1-4
- 5-8
- 9-13
- 14-17
- 18-20
- 21+

5) On average, how many days per week do you drink 4 or more alcoholic drinks (for women) or 5 or more alcoholic drinks (for men) within a several hour period?

- 0
- <1
- 1
- 2-3
- 4+

6) Do you have problems with drug or alcohol use?

- Yes
- No

7) Have you ever had a period of time lasting for at least four days in a row when you were feeling 'up' or 'high' or 'hyper' or so full of energy or full of yourself that you got into trouble, or that other people thought you were not your usual self?

- Yes
- No
8) Have you ever been diagnosed with bipolar disorder?
   - Yes
   - No

10) Are you currently receiving cognitive behavioral therapy (CBT) or exposure therapy for social fears or anxiety?
   - Yes
   - No
   - Not sure

9) Do you see or hear things that other people do not see or hear?
   - Yes
   - No

11) Is English your first language?
   - Yes
   - No

12) How old are you?
   - 0-17
   - 18-22
   - 23-25
   - 26+

---

End of Block: Additional exclusion criteria

Start of Block: If eligible

**Congratulations! You are eligible to participate in this study.** As a reminder, study participation involves 1) completing a second brief set of online questionnaires, 2) coming into
the laboratory on the CU Boulder campus for a 2-2.5 hour experimental session, 3) returning one week later for a second 1-1.5 hour experimental session, and 4) completing a brief set of online questionnaires 2 weeks later. **You will receive 9 credits or be paid up to $32 for completing the entire study.** If you are still interested in participating in this study, **please sign up for an available slot on** the Sona Subject Pool website (if completing for subject pool credit) or Paid Sona website (if completing for payment). Please also provide your contact information below so that we can give you credit for completing the screening survey and can check that only those who are eligible have signed up for the study.

The **invitation code** needed to sign up for a timeslot is: **I_am_eligible**

Please provide the following information so that we can contact you:

- **Name**
- **Email address**
- **Are you a student? (Yes or No)**
- **If so, which type? (Undergraduate or Graduate)**
- **Referral source (Campus ad, Craigslist or online ad, Flyer, or Other)**

End of Block: If eligible
Pre-baseline Questionnaire

Start of Block: Directions

Please read the following questions carefully and answer as honestly and accurately as possible. There is no right or wrong answer; please just be as honest as possible.

Note: This survey may be inaccessible to respondents who use a keyboard only or a screen reader. If you are unable to complete this survey, you should contact Rebecca Schneider at intervention-study@colorado.edu to receive an accessible version. CU Boulder is committed to accessibility and is working with Qualtrics to improve the accessibility of their survey software.

End of Block: Directions

Start of Block: LSAS

Read each situation carefully and answer two questions about that situation. The first question asks how anxious or fearful you feel in the situation. The second question asks how often you avoid the situation.

If you come across a situation that you ordinarily do not experience, imagine "what if you were faced with that situation," and then, rate the degree to which you would fear this hypothetical situation and how often you would tend to avoid it.

Please base your ratings on the way that the situations have affected you in the last week. Fill out the following scale with the most suitable answer provided below.

<table>
<thead>
<tr>
<th></th>
<th>Fear or anxiety</th>
<th>Avoidance</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>0 = None</td>
<td>0 = Never</td>
</tr>
<tr>
<td></td>
<td>1 = Mild</td>
<td>1 = Occasionally</td>
</tr>
<tr>
<td></td>
<td>2 = Moderate</td>
<td>2 = Often</td>
</tr>
<tr>
<td></td>
<td>3 = Severe</td>
<td>3 = Usually</td>
</tr>
</tbody>
</table>

1) Telephoning in public
2) Participating in small groups
3) Eating in public places
4) Drinking with others in public places
5) Talking to people in authority
|   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| 6) Acting, performing, or giving a talk in front of an audience |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| 7) Going to a party |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| 8) Working while being observed |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| 9) Writing while being observed |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| 10) Calling someone you don't know very well |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| 11) Talking with people you don't know very well |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| 12) Meeting strangers |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| 13) Urinating in a public bathroom |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| 14) Entering a room when others are already seated |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| 15) Being the center of attention |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| 16) Speaking up at a meeting |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| 17) Taking a test |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
| 18) Expressing a disagreement or disapproval to people you don't know very well |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
Please order the following situations (drawn from the previous set of questions) from most to least feared. [For example, if “resisting a high pressure salesperson” is harder for you than “returning goods to a store,” you would move the salesperson item above the return item. Some items may feel equally fearful to you, or it may be difficult to know which situations are harder than others. That’s okay, just rank the situations to the best of your ability.]

<p>| | | | | | | | | | |</p>
<table>
<thead>
<tr>
<th></th>
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<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>19) Looking at people you don't know very well in the eyes</td>
<td></td>
<td></td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>20) Giving a report to a group</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>21) Trying to pick up someone</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>22) Returning goods to a store</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>23) Giving a party</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>24) Resisting a high pressure salesperson</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

End of Block: LSAS

Start of Block: Fear hierarchy

Please order the following situations (drawn from the previous set of questions) from most to least feared. [For example, if “resisting a high pressure salesperson” is harder for you than “returning goods to a store,” you would move the salesperson item above the return item. Some items may feel equally fearful to you, or it may be difficult to know which situations are harder than others. That’s okay, just rank the situations to the best of your ability.]
End of Block: Fear hierarchy

Start of Block: Money questions

Please answer the following questions as honestly as possible. There is no right or wrong answer.

<table>
<thead>
<tr>
<th></th>
<th>Very untrue of me</th>
<th>Untrue of me</th>
<th>Somewhat untrue of me</th>
<th>Somewhat true of me</th>
<th>True of me</th>
<th>Very true of me</th>
</tr>
</thead>
<tbody>
<tr>
<td>1) I believe that the more money you have, the happier you are</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
</tr>
<tr>
<td>2) I value money very highly</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
</tr>
<tr>
<td>3) Money is important</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
</tr>
<tr>
<td>4) I daydream about being rich</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
</tr>
</tbody>
</table>
5) Do you have a job?

○ Yes

○ No

6) Do you receive monetary support from your parents?

○ Yes

○ No

7) If you receive support from your parents, what is their household income?

○ Less than $19,999

○ $20,000 to $39,999

○ $40,000 to $59,999

○ $60,000 to $79,999

○ $80,000 to $99,999

○ $100,000 or more
8) What is your personal household combined income? (i.e., any income without parental support)

- Less than $19,999
- $20,000 to $39,999
- $40,000 to $59,999
- $60,000 to $79,999
- $80,000 to $99,999
- $100,000 or more

9) To what extent do you feel right now that you're short on money?

- Not at all 0
- 1
- 2
- Moderately 3
- 4
- Very much 5

End of Block: Money questions

Start of Block: Block 8

How old are you?

End of Block: Block 8

Start of Block: CPVI

For each of the areas listed below consider how you most want to live your life. Then rate how IMPORTANT each domain is for you. This is NOT about how well you are doing in each area – it is about how important it is to you. Rate the importance you place in each domain using any number on the scale from 0 (not at all important) to 5 (extremely important). Each area need not be important to you – rate an area low if it is not important to you personally.
Consider each area according to your values, the important ways that you most want to live your life in each domain

<table>
<thead>
<tr>
<th>1) Family: Participation in your relationships with your parents, children, other close relatives, people you live with, or whoever is your &quot;family&quot;</th>
<th>0 Not at all important</th>
<th>1 Slightly important</th>
<th>2 Somewhat important</th>
<th>3 Moderately important</th>
<th>4 Very important</th>
<th>5 Extremely important</th>
</tr>
</thead>
<tbody>
<tr>
<td>2) Intimate relations: Being the kind of partner you want to be for your husband/wife or closest partner in life</td>
<td>0 Not at all important</td>
<td>1 Slightly important</td>
<td>2 Somewhat important</td>
<td>3 Moderately important</td>
<td>4 Very important</td>
<td>5 Extremely important</td>
</tr>
<tr>
<td>3) Friends: Spending time with friends, doing what you need to maintain friendships, or providing help and support for others as a friend</td>
<td>0 Not at all important</td>
<td>1 Slightly important</td>
<td>2 Somewhat important</td>
<td>3 Moderately important</td>
<td>4 Very important</td>
<td>5 Extremely important</td>
</tr>
<tr>
<td>4) Work: Engaging in whatever is your occupation, your job, volunteer work, community service, education, or your work around your own home</td>
<td>0 Not at all important</td>
<td>1 Slightly important</td>
<td>2 Somewhat important</td>
<td>3 Moderately important</td>
<td>4 Very important</td>
<td>5 Extremely important</td>
</tr>
<tr>
<td>5) Health: Keeping</td>
<td>0 Not at all important</td>
<td>1 Slightly important</td>
<td>2 Somewhat important</td>
<td>3 Moderately important</td>
<td>4 Very important</td>
<td>5 Extremely important</td>
</tr>
</tbody>
</table>
For each of the areas of life listed below consider again how you most want to live your life. Then rate how SUCCESSFUL you have been living according your values during the past two weeks. These questions are NOT asking how successful you want to be but how successful you have been. Rate your success using any number on the scale from 0 (not at all successful) to 5 (extremely successful).

Consider each area according to your values, the important ways that you most want to live your life in each domain

<table>
<thead>
<tr>
<th>0</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Not at all successful</td>
<td>Slightly successful</td>
<td>Somewhat successful</td>
<td>Moderately successful</td>
<td>Very successful</td>
<td>Extremely successful</td>
</tr>
</tbody>
</table>

| 1) Family: Participation in your relationships with your parents, children, other close relatives, people you live with, or whoever is your "family." |
|---|---|---|---|---|---|
|  |  |  |  |  | |

| 2) Intimate relations: Being the kind of partner you want to be for your husband/wife or closest partner in life |
|---|---|---|---|---|---|
|  |  |  |  |  | |
Please answer the following questions as honestly as possible. There is no right or wrong answer.

<table>
<thead>
<tr>
<th></th>
<th>Not at all true</th>
<th>Slightly true</th>
<th>Somewhat true</th>
<th>Moderately true</th>
<th>Very true</th>
<th>Extremely true</th>
</tr>
</thead>
<tbody>
<tr>
<td>1) I know what I want to stand for in life</td>
<td>〇</td>
<td>〇</td>
<td>〇</td>
<td>〇</td>
<td>〇</td>
<td>〇</td>
</tr>
<tr>
<td>2) I have a good balance of work and life</td>
<td>〇</td>
<td>〇</td>
<td>〇</td>
<td>〇</td>
<td>〇</td>
<td>〇</td>
</tr>
<tr>
<td>3) Friends: Spending time with friends, doing what you need to maintain friendships, or providing help and support for others as a friend</td>
<td>〇</td>
<td>〇</td>
<td>〇</td>
<td>〇</td>
<td>〇</td>
<td>〇</td>
</tr>
<tr>
<td>4) Work: Engaging in whatever is your occupation, your job, volunteer work, community service, education, or your work around your own home</td>
<td>〇</td>
<td>〇</td>
<td>〇</td>
<td>〇</td>
<td>〇</td>
<td>〇</td>
</tr>
<tr>
<td>5) Health: Keeping yourself fit, physically able, and healthy just as you would most want to do</td>
<td>〇</td>
<td>〇</td>
<td>〇</td>
<td>〇</td>
<td>〇</td>
<td>〇</td>
</tr>
<tr>
<td>6) Growth and learning: Learning new skills or gaining knowledge, or improving yourself as a person as you would most want</td>
<td>〇</td>
<td>〇</td>
<td>〇</td>
<td>〇</td>
<td>〇</td>
<td>〇</td>
</tr>
</tbody>
</table>
Each statement below describes how a person might feel when starting therapy or approaching problems in their lives. Please indicate the extent to which you tend to agree or disagree with each statement. In each case, make your choice in terms of how you feel right now, not what you have felt in the past or would like to feel. For all the statements that refer to your “problem,” answer in terms of problems related to social and/or public speaking anxiety. The words “here” and “this place” refer to this study. Some of these questions may seem to fit your experience more than others. Please just try to answer each question to the best of your ability. Choose the number that best describes how much you agree or disagree with each statement.

<table>
<thead>
<tr>
<th>Strongly disagree</th>
<th>Disagree</th>
<th>Undecided</th>
<th>Agree</th>
<th>Strongly agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>1) As far as I am concerned, I don't have any problems that need changing</td>
<td>o</td>
<td>o</td>
<td>o</td>
<td>o</td>
</tr>
<tr>
<td>2) I think I might be ready for some self-improvement</td>
<td>o</td>
<td>o</td>
<td>o</td>
<td>o</td>
</tr>
<tr>
<td>3) I am doing something about the problems that had been bothering me</td>
<td>o</td>
<td>o</td>
<td>o</td>
<td>o</td>
</tr>
<tr>
<td>4) It might be worthwhile to work on my problem</td>
<td>o</td>
<td>o</td>
<td>o</td>
<td>o</td>
</tr>
<tr>
<td>5) I'm not the problem one. It doesn't make much sense for me to be here</td>
<td>o</td>
<td>o</td>
<td>o</td>
<td>o</td>
</tr>
</tbody>
</table>
6) It worries me that I might slip back on a problem I have already changed, so I am here to seek help

7) I am finally doing some work on my problem

8) I've been thinking that I might want to change something about myself

9) I have been successful in working on my problem, but I'm not sure I can keep up the effort on my own

10) At times my problem is difficult, but I'm working on it

11) Being here is pretty much a waste of time for me because the problem doesn't have to do with me

12) I'm hoping this place will help me to better understand myself

13) I guess I have faults, but there's nothing that I really need to change

14) I am really working hard to change

15) I have a problem, and I really think I should work on it

16) I'm not following through with what I had already changed as well as I had
hoped, and I'm here to prevent a relapse of the problem

17) Even though I'm not always successful in changing, I am at least working on my problem

18) I thought once I had resolved my problem I would be free of it, but sometimes I still find myself struggling with it

19) I wish I had more ideas on how to solve the problem

20) I have started working on my problems but I would like help

21) Maybe this place will be able to help me

22) I may need a boost right now to help me maintain the changes I've already made

23) I may be part of the problem, but I don't really think I am

24) I hope that someone here will have some good advice for me

25) Anyone can talk about changing; I'm actually doing something about it

26) All this talk about psychology is boring. Why can't people just forget about their problems?
Everyone has long-term Goals or Aspirations. These are the things that individuals hope to accomplish over the course of their lives. In this section, you will find a number of life goals, presented one at a time, and we ask you three questions about each goal. (a) How important is this goal to you? (b) How likely is it that you will attain this goal in your future? and (c) How much have you already achieved this goal thus far? Please use the following scale in answering each of the three questions about each life goal.

<table>
<thead>
<tr>
<th>Not at all</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>Moderately</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>Very</th>
<th>7</th>
</tr>
</thead>
</table>

Life-goal: To be a very wealthy person.

<table>
<thead>
<tr>
<th>1 = Not at all</th>
<th>2</th>
<th>3</th>
<th>4 = Moderately</th>
<th>5</th>
<th>6</th>
<th>7 = Very</th>
</tr>
</thead>
</table>
1) How important is this to you? 1 = Not at all 2 3 4 = Moderately 5 6 7 = Very
2) How likely is it that this will happen in your future? 1 = Not at all 2 3 4 = Moderately 5 6 7 = Very
3) How much have you already attained this goal? 1 = Not at all 2 3 4 = Moderately 5 6 7 = Very

### Life-goal: To grow and learn new things.

<table>
<thead>
<tr>
<th>1 = Not at all</th>
<th>2</th>
<th>3</th>
<th>4 = Moderately</th>
<th>5</th>
<th>6</th>
<th>7 = Very</th>
</tr>
</thead>
<tbody>
<tr>
<td>4) How important is this to you?</td>
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<tr>
<td>5) How likely is it that this will happen in your future?</td>
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</tr>
<tr>
<td>6) How much have you already attained this goal?</td>
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</tr>
</tbody>
</table>

### Life-goal: To have my name known by many people.

<table>
<thead>
<tr>
<th>1 = Not at all</th>
<th>2</th>
<th>3</th>
<th>4 = Moderately</th>
<th>5</th>
<th>6</th>
<th>7 = Very</th>
</tr>
</thead>
<tbody>
<tr>
<td>7) How important is this to you?</td>
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<tr>
<td>8) How likely is it that this will happen in your future?</td>
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<td></td>
</tr>
<tr>
<td>9) How much have you already</td>
<td></td>
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</tr>
</tbody>
</table>
Life-goal: To have good friends that I can count on.

<table>
<thead>
<tr>
<th></th>
<th>1 = Not at all</th>
<th>2</th>
<th>3</th>
<th>4 = Moderately</th>
<th>5</th>
<th>6</th>
<th>7 = Very</th>
</tr>
</thead>
<tbody>
<tr>
<td>10) How important is this to you?</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
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<tr>
<td>11) How likely is it that this will happen in your future?</td>
<td>○</td>
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<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>12) How much have you already attained this goal?</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
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<td>○</td>
</tr>
</tbody>
</table>

Life-goal: To successfully hide the signs of aging.

<table>
<thead>
<tr>
<th></th>
<th>1 = Not at all</th>
<th>2</th>
<th>3</th>
<th>4 = Moderately</th>
<th>5</th>
<th>6</th>
<th>7 = Very</th>
</tr>
</thead>
<tbody>
<tr>
<td>13) How important is this to you?</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>14) How likely is it that this will happen in your future?</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>15) How much have you already attained this goal?</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
</tbody>
</table>

Life-goal: To work for the betterment of society.

<table>
<thead>
<tr>
<th></th>
<th>1 = Not at all</th>
<th>2</th>
<th>3</th>
<th>4 = Moderately</th>
<th>5</th>
<th>6</th>
<th>7 = Very</th>
</tr>
</thead>
</table>
16) How important is this to you?  
17) How likely is it that this will happen in your future?  
18) How much have you already attained this goal?

<table>
<thead>
<tr>
<th>Life-goal: To be physically healthy.</th>
<th>1 = Not at all</th>
<th>2</th>
<th>3</th>
<th>4 = Moderately</th>
<th>5</th>
<th>6</th>
<th>7 = Very</th>
</tr>
</thead>
<tbody>
<tr>
<td>19) How important is this to you?</td>
<td></td>
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<td></td>
</tr>
<tr>
<td>20) How likely is it that this will happen in your future?</td>
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<td></td>
</tr>
<tr>
<td>21) How much have you already attained this goal?</td>
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<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Life-goal: To have many expensive possessions.</th>
<th>1 = Not at all</th>
<th>2</th>
<th>3</th>
<th>4 = Moderately</th>
<th>5</th>
<th>6</th>
<th>7 = Very</th>
</tr>
</thead>
<tbody>
<tr>
<td>22) How important is this to you?</td>
<td></td>
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<td></td>
</tr>
<tr>
<td>23) How likely is it that this will happen in your future?</td>
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<td></td>
</tr>
<tr>
<td>24) How much have you already attained this goal?</td>
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<td></td>
<td></td>
</tr>
</tbody>
</table>
Life-goal: At the end of my life, to be able to look back on my life as meaningful and complete.

<table>
<thead>
<tr>
<th>1 = Not at all</th>
<th>2</th>
<th>3</th>
<th>4 = Moderately</th>
<th>5</th>
<th>6</th>
<th>7 = Very</th>
</tr>
</thead>
<tbody>
<tr>
<td>25) How important is this to you?</td>
<td>o</td>
<td>o</td>
<td>o</td>
<td>o</td>
<td>o</td>
<td>o</td>
</tr>
<tr>
<td>26) How likely is it that this will happen in your future?</td>
<td>o</td>
<td>o</td>
<td>o</td>
<td>o</td>
<td>o</td>
<td>o</td>
</tr>
<tr>
<td>27) How much have you already attained this goal?</td>
<td>o</td>
<td>o</td>
<td>o</td>
<td>o</td>
<td>o</td>
<td>o</td>
</tr>
</tbody>
</table>

Life-goal: To be admired by many people.

<table>
<thead>
<tr>
<th>1 = Not at all</th>
<th>2</th>
<th>3</th>
<th>4 = Moderately</th>
<th>5</th>
<th>6</th>
<th>7 = Very</th>
</tr>
</thead>
<tbody>
<tr>
<td>28) How important is this to you?</td>
<td>o</td>
<td>o</td>
<td>o</td>
<td>o</td>
<td>o</td>
<td>o</td>
</tr>
<tr>
<td>29) How likely is it that this will happen in your future?</td>
<td>o</td>
<td>o</td>
<td>o</td>
<td>o</td>
<td>o</td>
<td>o</td>
</tr>
<tr>
<td>30) How much have you already attained this goal?</td>
<td>o</td>
<td>o</td>
<td>o</td>
<td>o</td>
<td>o</td>
<td>o</td>
</tr>
</tbody>
</table>

Life-goal: To share my life with someone I love.

<table>
<thead>
<tr>
<th>1 = Not at all</th>
<th>2</th>
<th>3</th>
<th>4 = Moderately</th>
<th>5</th>
<th>6</th>
<th>7 = Very</th>
</tr>
</thead>
<tbody>
<tr>
<td>31) How important is this to you?</td>
<td>o</td>
<td>o</td>
<td>o</td>
<td>o</td>
<td>o</td>
<td>o</td>
</tr>
</tbody>
</table>
### Life-goal: To have people comment often about how attractive I look.

| 32) How likely is it that this will happen in your future? | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 33) How much have you already attained this goal? | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

### Life-goal: To assist people who need it, asking nothing in return.

| 34) How important is this to you? | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 35) How likely is it that this will happen in your future? | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 36) How much have you already attained this goal? | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
Life-goal: To feel good about my level of physical fitness.

<table>
<thead>
<tr>
<th>1 = Not at all</th>
<th>2</th>
<th>3</th>
<th>4 = Moderately</th>
<th>5</th>
<th>6</th>
<th>7 = Very</th>
</tr>
</thead>
<tbody>
<tr>
<td>40) How important is this to you?</td>
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</tr>
<tr>
<td>41) How likely is it that this will happen in your future?</td>
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</tr>
<tr>
<td>42) How much have you already attained this goal?</td>
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</tbody>
</table>

Life-goal: To be financially successful.

<table>
<thead>
<tr>
<th>1 = Not at all</th>
<th>2</th>
<th>3</th>
<th>4 = Moderately</th>
<th>5</th>
<th>6</th>
<th>7 = Very</th>
</tr>
</thead>
<tbody>
<tr>
<td>43) How important is this to you?</td>
<td></td>
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<td></td>
</tr>
<tr>
<td>44) How likely is it that this will happen in your future?</td>
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</tr>
<tr>
<td>45) How much have you already attained this goal?</td>
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</tbody>
</table>

Life-goal: To choose what I do, instead of being pushed along by life.

<table>
<thead>
<tr>
<th>1 = Not at all</th>
<th>2</th>
<th>3</th>
<th>4 = Moderately</th>
<th>5</th>
<th>6</th>
<th>7 = Very</th>
</tr>
</thead>
<tbody>
<tr>
<td>46) How important is this to you?</td>
<td></td>
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</tr>
<tr>
<td>47) How likely is it that this will happen in</td>
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</tr>
</tbody>
</table>
Life goal: To be famous.

<table>
<thead>
<tr>
<th>48) How much have you already attained this goal?</th>
<th>1 = Not at all</th>
<th>2</th>
<th>3</th>
<th>4 = Moderately</th>
<th>5</th>
<th>6</th>
<th>7 = Very</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

| 49) How important is this to you?                  | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 50) How likely is it that this will happen in your future? | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 51) How much have you already attained this goal?   | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

Life goal: To have committed, intimate relationships.

| 52) How important is this to you?                  | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 53) How likely is it that this will happen in your future? | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 54) How much have you already attained this goal?   | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
Life-goal: To keep up with fashions in hair and clothing.

<table>
<thead>
<tr>
<th></th>
<th>1 = Not at all</th>
<th>2</th>
<th>3</th>
<th>4 = Moderately</th>
<th>5</th>
<th>6</th>
<th>7 = Very</th>
</tr>
</thead>
<tbody>
<tr>
<td>55) How important is this to you?</td>
<td>○</td>
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<tr>
<td>56) How likely is it that this will happen in your future?</td>
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</tr>
<tr>
<td>57) How much have you already attained this goal?</td>
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</tbody>
</table>

Life-goal: To work to make the world a better place.

<table>
<thead>
<tr>
<th></th>
<th>1 = Not at all</th>
<th>2</th>
<th>3</th>
<th>4 = Moderately</th>
<th>5</th>
<th>6</th>
<th>7 = Very</th>
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</thead>
<tbody>
<tr>
<td>58) How important is this to you?</td>
<td>○</td>
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</tr>
<tr>
<td>59) How likely is it that this will happen in your future?</td>
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<tr>
<td>60) How much have you already attained this goal?</td>
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</table>

Life-goal: To keep myself healthy and well.

<table>
<thead>
<tr>
<th></th>
<th>1 = Not at all</th>
<th>2</th>
<th>3</th>
<th>4 = Moderately</th>
<th>5</th>
<th>6</th>
<th>7 = Very</th>
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</thead>
<tbody>
<tr>
<td>61) How important is this to you?</td>
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<tr>
<td>62) How likely is it that this will happen in</td>
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</tbody>
</table>
Life-goal: To be rich.

<table>
<thead>
<tr>
<th></th>
<th>1 = Not at all</th>
<th>2</th>
<th>3</th>
<th>4 = Moderately</th>
<th>5</th>
<th>6</th>
<th>7 = Very</th>
</tr>
</thead>
<tbody>
<tr>
<td>63) How much have you already attained this goal?</td>
<td>○</td>
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<tr>
<td>64) How important is this to you?</td>
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<tr>
<td>65) How likely is it that this will happen in your future?</td>
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<tr>
<td>66) How much have you already attained this goal?</td>
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</table>

Life-goal: To know and accept who I really am.

<table>
<thead>
<tr>
<th></th>
<th>1 = Not at all</th>
<th>2</th>
<th>3</th>
<th>4 = Moderately</th>
<th>5</th>
<th>6</th>
<th>7 = Very</th>
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</thead>
<tbody>
<tr>
<td>67) How important is this to you?</td>
<td>○</td>
<td>○</td>
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</tr>
<tr>
<td>68) How likely is it that this will happen in your future?</td>
<td>○</td>
<td>○</td>
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</tr>
<tr>
<td>69) How much have you already attained this goal?</td>
<td>○</td>
<td>○</td>
<td>○</td>
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<td>○</td>
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<td>○</td>
</tr>
</tbody>
</table>
Life-goal: To have my name appear frequently in the media.

<table>
<thead>
<tr>
<th>Question</th>
<th>1 = Not at all</th>
<th>2</th>
<th>3</th>
<th>4 = Moderately</th>
<th>5</th>
<th>6</th>
<th>7 = Very</th>
</tr>
</thead>
<tbody>
<tr>
<td>70) How important is this to you?</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
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<tr>
<td>71) How likely is it that this will happen in your future?</td>
<td>○</td>
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</tr>
<tr>
<td>72) How much have you already attained this goal?</td>
<td>○</td>
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<td>○</td>
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</tbody>
</table>

Life-goal: To feel that there are people who really love me, and whom I love.

<table>
<thead>
<tr>
<th>Question</th>
<th>1 = Not at all</th>
<th>2</th>
<th>3</th>
<th>4 = Moderately</th>
<th>5</th>
<th>6</th>
<th>7 = Very</th>
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</thead>
<tbody>
<tr>
<td>73) How important is this to you?</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>74) How likely is it that this will happen in your future?</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>75) How much have you already attained this goal?</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
</tbody>
</table>

Life-goal: To achieve the "look" I've been after.

<table>
<thead>
<tr>
<th>Question</th>
<th>1 = Not at all</th>
<th>2</th>
<th>3</th>
<th>4 = Moderately</th>
<th>5</th>
<th>6</th>
<th>7 = Very</th>
</tr>
</thead>
<tbody>
<tr>
<td>76) How important is this to you?</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>77) How likely is it that this will happen in</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
</tbody>
</table>
Life-goal: To help others improve their lives.

<table>
<thead>
<tr>
<th></th>
<th>1 = Not at all</th>
<th>2</th>
<th>3</th>
<th>4 = Moderately</th>
<th>5</th>
<th>6</th>
<th>7 = Very</th>
</tr>
</thead>
<tbody>
<tr>
<td>78) How much have you already attained this goal?</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>79) How important is this to you?</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>80) How likely is it that this will happen in your future?</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>81) How much have you already attained this goal?</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Life-goal: To be relatively free from sickness.

<table>
<thead>
<tr>
<th></th>
<th>1 = Not at all</th>
<th>2</th>
<th>3</th>
<th>4 = Moderately</th>
<th>5</th>
<th>6</th>
<th>7 = Very</th>
</tr>
</thead>
<tbody>
<tr>
<td>82) How important is this to you?</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>83) How likely is it that this will happen in your future?</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>84) How much have you already attained this goal?</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Life-goal: To have enough money to buy everything I want.

<table>
<thead>
<tr>
<th>1 = Not at all</th>
<th>2</th>
<th>3</th>
<th>4 = Moderately</th>
<th>5</th>
<th>6</th>
<th>7 = Very</th>
</tr>
</thead>
<tbody>
<tr>
<td>85) How important is this to you?</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>86) How likely is it that this will happen in your future?</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>87) How much have you already attained this goal?</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Life-goal: To gain increasing insight into why I do the things I do.

<table>
<thead>
<tr>
<th>1 = Not at all</th>
<th>2</th>
<th>3</th>
<th>4 = Moderately</th>
<th>5</th>
<th>6</th>
<th>7 = Very</th>
</tr>
</thead>
<tbody>
<tr>
<td>88) How important is this to you?</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>89) How likely is it that this will happen in your future?</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>90) How much have you already attained this goal?</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Life-goal: To be admired by lots of different people.

<table>
<thead>
<tr>
<th>1 = Not at all</th>
<th>2</th>
<th>3</th>
<th>4 = Moderately</th>
<th>5</th>
<th>6</th>
<th>7 = Very</th>
</tr>
</thead>
<tbody>
<tr>
<td>91) How important is this to you?</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>92) How likely is it that this will happen in</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Life-goal: To have deep enduring relationships.

<table>
<thead>
<tr>
<th></th>
<th>1 = Not at all</th>
<th>2</th>
<th>3</th>
<th>4 = Moderately</th>
<th>5</th>
<th>6</th>
<th>7 = Very</th>
</tr>
</thead>
<tbody>
<tr>
<td>93) How much have you already attained this goal?</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>94) How important is this to you?</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>95) How likely is it that this will happen in your future?</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>96) How much have you already attained this goal?</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Life-goal: To have an image that others find appealing.

<table>
<thead>
<tr>
<th></th>
<th>1 = Not at all</th>
<th>2</th>
<th>3</th>
<th>4 = Moderately</th>
<th>5</th>
<th>6</th>
<th>7 = Very</th>
</tr>
</thead>
<tbody>
<tr>
<td>97) How important is this to you?</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>98) How likely is it that this will happen in your future?</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>99) How much have you already attained this goal?</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Life-goal: To help people in need.

<table>
<thead>
<tr>
<th>1 = Not at all</th>
<th>2</th>
<th>3</th>
<th>4 = Moderately</th>
<th>5</th>
<th>6</th>
<th>7 = Very</th>
</tr>
</thead>
<tbody>
<tr>
<td>100) How important is this to you?</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>101) How likely is it that this will happen in your future?</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>102) How much have you already attained this goal?</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Life-goal: To have a physically healthy life style.

<table>
<thead>
<tr>
<th>1 = Not at all</th>
<th>2</th>
<th>3</th>
<th>4 = Moderately</th>
<th>5</th>
<th>6</th>
<th>7 = Very</th>
</tr>
</thead>
<tbody>
<tr>
<td>103) How important is this to you?</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>104) How likely is it that this will happen in your future?</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>105) How much have you already attained this goal?</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

End of Block: Aspirations Index

Start of Block: Name

Do you need Sona subject pool credit for completing this survey?

- [ ] Yes

- [ ] No

Please note your name AND your email address here (as it is in the Sona system). This will ONLY be used to provide Sona credit for completing this survey. Once credit is given, the information you have provided will be de-personalized and filed under a unique ID number and
will not be associated with your name.

E.g., First name Last name, email address

________________________________________________________________

Please note your name here. This will ONLY be used to ensure that each participant has completed this survey prior to the first laboratory session. Once this is confirmed, the information you have provided will be de-personalized and filed under a unique ID number and will not be associated with your name.

________________________________________________________________

End of Block: Name
**Baseline Questionnaire**

Start of Block: Participant ID

Participant ID

End of Block: Participant ID

Start of Block: Instructions

(Baseline)
Please read the following questions carefully and respond as honestly and accurately as possible with the first response that comes to mind. There is no right or wrong answer; please just be as honest as possible.

End of Block: Instructions

Start of Block: SPIN

Please indicate how much the following problems have bothered you during the past week. Mark only one box for each problem, and be sure to answer all items.

<table>
<thead>
<tr>
<th></th>
<th>0</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
</tr>
</thead>
<tbody>
<tr>
<td>1) I am afraid of people in authority</td>
<td>〇</td>
<td>〇</td>
<td>〇</td>
<td>〇</td>
<td>〇</td>
</tr>
<tr>
<td>2) I am bothered by blushing in front of people</td>
<td>〇</td>
<td>〇</td>
<td>〇</td>
<td>〇</td>
<td>〇</td>
</tr>
<tr>
<td>3) Parties and social events scare me</td>
<td>〇</td>
<td>〇</td>
<td>〇</td>
<td>〇</td>
<td>〇</td>
</tr>
<tr>
<td>4) I avoid talking to people I don't know</td>
<td>〇</td>
<td>〇</td>
<td>〇</td>
<td>〇</td>
<td>〇</td>
</tr>
<tr>
<td>5) Being criticized scares me a lot</td>
<td>〇</td>
<td>〇</td>
<td>〇</td>
<td>〇</td>
<td>〇</td>
</tr>
<tr>
<td>6) Fear of embarrassment causes me to avoid doing things or speaking to people</td>
<td>〇</td>
<td>〇</td>
<td>〇</td>
<td>〇</td>
<td>〇</td>
</tr>
<tr>
<td>7) Sweating in front of people causes me distress</td>
<td>〇</td>
<td>〇</td>
<td>〇</td>
<td>〇</td>
<td>〇</td>
</tr>
</tbody>
</table>
8) I avoid going to parties

9) I avoid activities in which I am the centre of attention

10) Talking to strangers scares me

11) I avoid having to give speeches

12) I would do anything to avoid being criticized

13) Heart palpitations bother me when I am around people

14) I am afraid of doing things when people might be watching

15) Being embarrassed or looking stupid is among my worst fears

16) I avoid speaking to anyone in authority

17) Trembling or shaking in front of others is distressing to me

End of Block: SPIN

Start of Block: STAI-State

A number of statements which people have used to describe themselves are given below. Read each statement and then circle the appropriate number to indicate HOW YOU FEEL RIGHT NOW, at THIS MOMENT. There are no right or wrong answers. Do not spend too much time on any one statement, but give the answer which best seems to describe your present feelings.

<table>
<thead>
<tr>
<th>Statement</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
</tr>
</thead>
<tbody>
<tr>
<td>1) I feel calm</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>2) I feel secure</td>
<td>3) I feel tense</td>
<td>4) I feel strained</td>
<td>5) I feel at ease</td>
</tr>
<tr>
<td>---</td>
<td>----------------</td>
<td>----------------</td>
<td>------------------</td>
<td>-----------------</td>
</tr>
<tr>
<td></td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td></td>
<td>7) I am presently worrying over possible misfortunes</td>
<td>8) I feel satisfied</td>
<td>9) I feel frightened</td>
<td>10) I feel comfortable</td>
</tr>
<tr>
<td></td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td></td>
<td>12) I feel nervous</td>
<td>13) I am jittery</td>
<td>14) I feel indecisive</td>
<td>15) I am relaxed</td>
</tr>
<tr>
<td></td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td></td>
<td>17) I am worried</td>
<td>18) I feel confused</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>○</td>
<td>○</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
This scale consists of a number of words that describe different feelings and emotions. Read each item and then list the number from the scale below next to each word. **Indicate to what extent you feel this way right now, that is, at the present moment.**

<table>
<thead>
<tr>
<th></th>
<th>1 Very Slightly or Not at All</th>
<th>2 A Little</th>
<th>3 Moderately</th>
<th>4 Quite a Bit</th>
<th>5 Extremely</th>
</tr>
</thead>
<tbody>
<tr>
<td>19) I feel steady</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>20) I feel pleasant</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

End of Block: STAI-State

Start of Block: PANAS
Over the past 2 weeks, how often have you been bothered by any of the following problems?

<table>
<thead>
<tr>
<th></th>
<th>Not at all (0)</th>
<th>Several days (1)</th>
<th>More than half the days (2)</th>
<th>Nearly every day (3)</th>
</tr>
</thead>
<tbody>
<tr>
<td>11) Irritable</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>12) Alert</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>13) Ashamed</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>14) Inspired</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>15) Nervous</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>16) Determined</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>17) Attentive</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>18) Jittery</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>19) Active</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>20) Afraid</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

End of Block: PANAS

Start of Block: PHQ-9

Over the past 2 weeks, how often have you been bothered by any of the following problems?

<table>
<thead>
<tr>
<th></th>
<th>Not at all (0)</th>
<th>Several days (1)</th>
<th>More than half the days (2)</th>
<th>Nearly every day (3)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1) Little interest or pleasure in doing things</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2) Feeling down, depressed, or hopeless</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3) Trouble falling asleep, staying asleep, or sleeping too much</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4) Feeling tired or having little energy</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
If you checked off any problems, how difficult have these problems made it for you to do your work, take care of things at home, or get along with other people?

- Not difficult at all
- Somewhat difficult
- Very difficult
- Extremely difficult

End of Block: PHQ-9

Start of Block: Demographics

Please answer the following demographic questions.

1) What is your birthdate? (mm/dd/yyyy)

2) What is your current age?
3) What best describes your current marital status?

- Single
- Partnered (in ongoing, committed relationship)
- Dating (in casual, uncommitted relationship[s])
- Married
- Divorced / separated
- Other (please indicate) ________________________________________________

4) What is your ethnic / racial identity?

- Black / African American
- White / Caucasian
- Hispanic / Latina
- Asian, Asian American, or Pacific Islander
- Native American / Alaskan Native
- Biracial (please indicate) ________________________________________________
- Other (please indicate) ________________________________________________

5) What is your religious affiliation, if any?

________________________________________________________________
6) What is your highest education level so far?

- Some high school
- High School diploma / GED
- Some college
- 2-year college degree
- Bachelor's degree
- Some graduate education (indicate which)________________________________________
- Graduate degree (indicate which)________________________________________________
- Other (please indicate) ___________________________________________________________

7) What best describes your current employment status?

- Student full-time
- Student part-time
- Employed full-time (includes self-employment)
- Employed part-time
- Disability
- Other (please indicate) ___________________________________________________________

7a) If you are employed, what is your current job? (Write None if not currently employed)________________________________________________________________
8) Are you currently taking any medication for psychological or emotional functioning, or for pain?

○ Yes

○ No

8a) If yes, what type of medication(s) do you use?

________________________________________________________________

8b) Do you use the medication regularly or as needed? (If you take multiple medications, please specify which category each falls under)

Regularly ________________________________________________

As needed ________________________________________________

End of Block: Demographics
BL Session SUDS Questionnaire

Start of Block: Participant ID
Participant ID

End of Block: Participant ID

Start of Block: Accessibility instructions
This survey may be inaccessible to respondents who use a keyboard only or a screen reader. If you are unable to complete this survey, please let us know and you will be provided an alternate accessible version of our survey. CU Boulder is committed to accessibility and is working with Qualtrics to improve the accessibility of their survey software.

End of Block: Accessibility instructions

Start of Block: 1 - Pre BAT
1) What is your current anxiety level?

No anxiety  Moderate anxiety  Worst anxiety

End of Block: 1 - Pre BAT

Start of Block: 2 - Post BAT
2) What is your current anxiety level?

No anxiety  Moderate anxiety  Worst anxiety

End of Block: 2 - Post BAT

Start of Block: 3 - Peak BAT
3) What was your highest anxiety level during this task?

No anxiety  Moderate anxiety  Worst anxiety

End of Block: 3 - Peak BAT
What part of the speech was this?

- Beginning
- Middle
- End

End of Block: 3 - Peak BAT

Start of Block: 4) Post recovery BAT

4) What is your current anxiety level?

<table>
<thead>
<tr>
<th>Anxiety Level</th>
<th>Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>No anxiety</td>
<td>0</td>
</tr>
<tr>
<td>Moderate anxiety</td>
<td>10</td>
</tr>
<tr>
<td>Worst anxiety</td>
<td>100</td>
</tr>
</tbody>
</table>

End of Block: 4) Post recovery BAT

Start of Block: PANAS (post worksheet)

This scale consists of a number of words that describe different feelings and emotions. Read each item and then list the number from the scale below next to each word. **Indicate to what extent you feel this way right now, that is, at the present moment.**

<table>
<thead>
<tr>
<th>Feeling</th>
<th>1 Very Slightly or Not at All</th>
<th>2 A Little</th>
<th>3 Moderately</th>
<th>4 Quite a Bit</th>
<th>5 Extremely</th>
</tr>
</thead>
<tbody>
<tr>
<td>Interested</td>
<td>[ ]</td>
<td>[ ]</td>
<td>[ ]</td>
<td>[ ]</td>
<td>[ ]</td>
</tr>
<tr>
<td>Distressed</td>
<td>[ ]</td>
<td>[ ]</td>
<td>[ ]</td>
<td>[ ]</td>
<td>[ ]</td>
</tr>
<tr>
<td>Excited</td>
<td>[ ]</td>
<td>[ ]</td>
<td>[ ]</td>
<td>[ ]</td>
<td>[ ]</td>
</tr>
<tr>
<td></td>
<td>Upset</td>
<td>Strong</td>
<td>Guilty</td>
<td>Scared</td>
<td>Hostile</td>
</tr>
<tr>
<td>---</td>
<td>--------</td>
<td>--------</td>
<td>--------</td>
<td>--------</td>
<td>--------</td>
</tr>
</tbody>
</table>
End of Block: PANAS (post worksheet)

Start of Block: Thank you

Thank you for completing this questionnaire!

End of Block: Thank you

Start of Block: 5 - Pre 1st exposure group

5) What is your current anxiety level?
   No anxiety  Moderate anxiety  Worst anxiety
   0  10  20  30  40  50  60  70  80  90  100

End of Block: 5 - Pre 1st exposure group

Start of Block: 6 - Pre speech 1

6) What is your current anxiety level?
   No anxiety  Moderate anxiety  Worst anxiety
   0  10  20  30  40  50  60  70  80  90  100

End of Block: 6 - Pre speech 1

Start of Block: 7-8 - Post/peak speech 1

7) What is your current anxiety level?
   No anxiety  Moderate anxiety  Worst anxiety
   0  10  20  30  40  50  60  70  80  90  100

End of Block: 7-8 - Post/peak speech 1

8) What was your highest anxiety level during this task?
   No anxiety  Moderate anxiety  Worst anxiety
   0  10  20  30  40  50  60  70  80  90  100

End of Block: 7-8 - Post/peak speech 1
9) What is your current anxiety level?

No anxiety  Moderate anxiety  Worst anxiety
0 10 20 30 40 50 60 70 80 90 100

10) What is your current anxiety level?

No anxiety  Moderate anxiety  Worst anxiety
0 10 20 30 40 50 60 70 80 90 100

11) What was your highest anxiety level during this task?

No anxiety  Moderate anxiety  Worst anxiety
0 10 20 30 40 50 60 70 80 90 100

12) What is your current anxiety level?

No anxiety  Moderate anxiety  Worst anxiety
0 10 20 30 40 50 60 70 80 90 100
13) What is your current anxiety level?

No anxiety  Moderate anxiety  Worst anxiety

0  10  20  30  40  50  60  70  80  90  100

14) What was your highest anxiety level during this task?

No anxiety  Moderate anxiety  Worst anxiety

0  10  20  30  40  50  60  70  80  90  100

End of Block: 13-14 - Post/peak speech 3

Start of Block: 15 - Pre speech 4

15) What is your current anxiety level?

No anxiety  Moderate anxiety  Worst anxiety

0  10  20  30  40  50  60  70  80  90  100

End of Block: 15 - Pre speech 4

Start of Block: 16-17 - Post/peak speech 4

16) What is your current anxiety level?

No anxiety  Moderate anxiety  Worst anxiety

0  10  20  30  40  50  60  70  80  90  100

17) What was your highest anxiety level during this task?

No anxiety  Moderate anxiety  Worst anxiety

0  10  20  30  40  50  60  70  80  90  100
18) What is your current anxiety level?
No anxiety  Moderate anxiety  Worst anxiety
0 10 20 30 40 50 60 70 80 90 100

19) What is your current anxiety level?
No anxiety  Moderate anxiety  Worst anxiety
0 10 20 30 40 50 60 70 80 90 100

20) What was your highest anxiety level during this task?
No anxiety  Moderate anxiety  Worst anxiety
0 10 20 30 40 50 60 70 80 90 100

21) What is your current anxiety level?
No anxiety  Moderate anxiety  Worst anxiety
0 10 20 30 40 50 60 70 80 90 100
22) What is your current anxiety level?

[Graph showing anxiety level]

End of Block: 22 - Pre 2nd exposure group

Start of Block: 23 - Pre speech 6

23) What is your current anxiety level?

[Graph showing anxiety level]

End of Block: 23 - Pre speech 6

Start of Block: 24-25 - Post/peak speech 6

24) What is your current anxiety level?

[Graph showing anxiety level]

25) What was your highest anxiety level during this task?

[Graph showing anxiety level]

End of Block: 24-25 - Post/peak speech 6

Start of Block: 26 - Pre speech 7

26) What is your current anxiety level?
27) What is your current anxiety level?

No anxiety Moderate anxiety Worst anxiety
0 10 20 30 40 50 60 70 80 90 100

28) What was your highest anxiety level during this task?

No anxiety Moderate anxiety Worst anxiety
0 10 20 30 40 50 60 70 80 90 100

29) What is your current anxiety level?

No anxiety Moderate anxiety Worst anxiety
0 10 20 30 40 50 60 70 80 90 100

30) What is your current anxiety level?

No anxiety Moderate anxiety Worst anxiety
0 10 20 30 40 50 60 70 80 90 100
31) What was your highest anxiety level during this task?

No anxiety  Moderate anxiety  Worst anxiety
0  10  20  30  40  50  60  70  80  90  100

End of Block: 30-31 - Post/peak speech 8

Start of Block: 32 - Pre speech 9

32) What is your current anxiety level?

No anxiety  Moderate anxiety  Worst anxiety
0  10  20  30  40  50  60  70  80  90  100

End of Block: 32 - Pre speech 9

Start of Block: 33-34 - Post/peak speech 9

33) What is your current anxiety level?

No anxiety  Moderate anxiety  Worst anxiety
0  10  20  30  40  50  60  70  80  90  100

End of Block: 33-34 - Post/peak speech 9

Start of Block: 35 - Pre speech 10

34) What was your highest anxiety level during this task?

No anxiety  Moderate anxiety  Worst anxiety
0  10  20  30  40  50  60  70  80  90  100

End of Block: 33-34 - Post/peak speech 9

Start of Block: 35 - Pre speech 10

35) What is your current anxiety level?

No anxiety  Moderate anxiety  Worst anxiety
0  10  20  30  40  50  60  70  80  90  100
36) What is your current anxiety level?  
No anxiety  Moderate anxiety  Worst anxiety  
0  10  20  30  40  50  60  70  80  90  100

37) What was your highest anxiety level during this task?  
No anxiety  Moderate anxiety  Worst anxiety  
0  10  20  30  40  50  60  70  80  90  100

38) What is your current anxiety level?  
No anxiety  Moderate anxiety  Worst anxiety  
0  10  20  30  40  50  60  70  80  90  100
**FU1 Beginning of Session Questionnaires**

---

**Start of Block: Participant ID**

Participant ID

---

**End of Block: Participant ID**

**Start of Block: Instructions**

*(Follow-up Baseline)*

Please read the following questions carefully and respond as honestly and accurately as possible with the first response that comes to mind. There is no right or wrong answer; please just be as honest as possible.

---

**End of Block: Instructions**

**Start of Block: SPIN**

Please indicate how much the following problems have bothered you during the past week. Mark only one box for each problem, and be sure to answer all items.

<table>
<thead>
<tr>
<th></th>
<th>Not at all</th>
<th>A little bit</th>
<th>Somewhat</th>
<th>Very much</th>
<th>Extremely</th>
</tr>
</thead>
<tbody>
<tr>
<td>1) I am afraid of people in authority</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
</tr>
<tr>
<td>2) I am bothered by blushing in front of people</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
</tr>
<tr>
<td>3) Parties and social events scare me</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
</tr>
<tr>
<td>4) I avoid talking to people I don't know</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
</tr>
<tr>
<td>5) Being criticized scares me a lot</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
</tr>
<tr>
<td>6) Fear of embarrassment causes me to avoid doing things or speaking to people</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
</tr>
<tr>
<td>7) Sweating in front of people causes me distress</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
</tr>
<tr>
<td>8) I avoid going to parties</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
<td>O</td>
</tr>
</tbody>
</table>
A number of statements which people have used to describe themselves are given below. Read each statement and then circle the appropriate number to indicate **HOW YOU FEEL RIGHT NOW, at THIS MOMENT**. There are no right or wrong answers. Do not spend too much time on any one statement, but give the answer which best seems to describe your present feelings.

<table>
<thead>
<tr>
<th></th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>1)</strong> I feel calm</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>2)</strong> I feel secure</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

9) I avoid activities in which I am the centre of attention
10) Talking to strangers scares me
11) I avoid having to give speeches
12) I would do anything to avoid being criticized
13) Heart palpitations bother me when I am around people
14) I am afraid of doing things when people might be watching
15) Being embarrassed or looking stupid is among my worst fears
16) I avoid speaking to anyone in authority
17) Trembling or shaking in front of others is distressing to me
|   | 3) I feel tense | 4) I feel strained | 5) I feel at ease | 6) I feel upset | 7) I am presently worrying over possible misfortunes | 8) I feel satisfied | 9) I feel frightened | 10) I feel comfortable | 11) I feel self-confident | 12) I feel nervous | 13) I am jittery | 14) I feel indecisive | 15) I am relaxed | 16) I feel content | 17) I am worried | 18) I feel confused | 19) I feel steady |
|---|----------------|------------------|------------------|----------------|-----------------------------------------------|-------------------|-------------------|----------------------|----------------------|----------------------|------------------|---------------------|-------------------|------------------|------------------|-----------------|-----------------|-----------------|-----------------|
This scale consists of a number of words that describe different feelings and emotions. Read each item and then list the number from the scale below next to each word. **Indicate to what extent you feel this way right now, that is, at the present moment.**

<table>
<thead>
<tr>
<th></th>
<th>1 Very Slightly or Not at All</th>
<th>2 A Little</th>
<th>3 Moderately</th>
<th>4 Quite a Bit</th>
<th>5 Extremely</th>
</tr>
</thead>
<tbody>
<tr>
<td>1) Interested</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2) Distressed</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3) Excited</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4) Upset</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5) Strong</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6) Guilty</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7) Scared</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8) Hostile</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>9) Enthusiastic</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10) Proud</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>11) Irritable</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
### Exposure questions

1) Did you complete any exposures or purposefully participate in feared social or speaking situations this past week?

- [ ] Yes
- [ ] No
2) If yes, how often did you challenge yourself in this way this past week?

- 0 Not at all
- 1 Once
- 2 Twice
- 3 A few times
- 4 Most days per week

3) If yes, what motivated you to do so?

________________________________________________________________

2) If no, what prevented you from doing so?

________________________________________________________________

End of Block: Exposure questions
FU1 End of Session Questionnaires

Start of Block: Participant ID
Participant ID

End of Block: Participant ID

Start of Block: Instructions
(Follow-up Post)
Please read the following questions carefully and respond as honestly and accurately as possible with the first response that comes to mind. There is no right or wrong answer; please just be as honest as possible.

End of Block: Instructions

Start of Block: MIS
Please answer the following questions as honestly as possible. There is no right or wrong answer.

<table>
<thead>
<tr>
<th></th>
<th>Very untrue of me</th>
<th>Untrue of me</th>
<th>Somewhat untrue of me</th>
<th>Somewhat true of me</th>
<th>True of me</th>
<th>Very true of me</th>
</tr>
</thead>
<tbody>
<tr>
<td>1) I believe that the more money you have, the happier you are</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>2) I value money very highly</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>3) Money is important</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>4) I daydream about being rich</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
</tbody>
</table>

End of Block: MIS

Start of Block: Values
Please answer the following questions as honestly as possible. There is no right or wrong answer.

<table>
<thead>
<tr>
<th></th>
<th>Not at all true</th>
<th>Slightly true</th>
<th>Somewhat true</th>
<th>Moderately true</th>
<th>Very true</th>
<th>Extremely true</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
For each of the areas listed below consider how you most want to live your life. Then rate how IMPORTANT each domain is for you. This is NOT about how well you are doing in each area – it is about how important it is to you. Rate the importance you place in each domain using any number on the scale from 0 (not at all important) to 5 (extremely important). Each area need not be important to you – rate an area low if it is not important to you personally.

Consider each area according to your values, the important ways that you most want to live your life in each domain

<table>
<thead>
<tr>
<th>IMPORTANCE of this domain to you</th>
</tr>
</thead>
<tbody>
<tr>
<td>0 Not at all important</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>1) I know what I want to stand for in life</th>
</tr>
</thead>
<tbody>
<tr>
<td>o o o o o o</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>2) I am able to identify my core values</th>
</tr>
</thead>
<tbody>
<tr>
<td>o o o o o o</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>3) Living by my values is important to me</th>
</tr>
</thead>
<tbody>
<tr>
<td>o o o o o o</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>4) I have spent time reflecting on my values</th>
</tr>
</thead>
<tbody>
<tr>
<td>o o o o o o</td>
</tr>
</tbody>
</table>

End of Block: Values
3) Friends:
Spending time with friends, doing what you need to maintain friendships, or providing help and support for others as a friend

4) Work:
Engaging in whatever is your occupation, your job, volunteer work, community service, education, or your work around your own home

5) Health:
Keeping yourself fit, physically able, and healthy just as you would most want to do

6) Growth and learning:
Learning new skills or gaining knowledge, or improving yourself as a person as you would most want
For each of the areas of life listed below consider again how you most want to live your life. Then rate how SUCCESSFUL you have been living according your values during the past two weeks. These questions are NOT asking how successful you want to be but how successful you have been. Rate your success using any number on the scale from 0 (not at all successful) to 5 (extremely successful).

Consider each area according to your values, the important ways that you most want to live your life in each domain

<table>
<thead>
<tr>
<th>SUCCESS at living your values</th>
<th>0  Not at all successful</th>
<th>1  Slightly successful</th>
<th>2  Somewhat successful</th>
<th>3  Moderately successful</th>
<th>4  Very successful</th>
<th>5  Extremely successful</th>
</tr>
</thead>
<tbody>
<tr>
<td>1) Family: Participation in your relationships with your parents, children, other close relatives, people you live with, or whoever is your &quot;family&quot;</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2) Intimate relations: Being the kind of partner you want to be for your husband/wife or closest partner in life</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3) Friends: Spending time with friends, doing what you need to maintain friendships, or providing help and support for others as a friend</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4) Work: Engaging in whatever is your occupation, your job, volunteer work, community service, education, or</td>
<td></td>
<td></td>
<td></td>
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<td></td>
<td></td>
</tr>
</tbody>
</table>
Each statement below describes how a person might feel when starting therapy or approaching problems in their lives. Please indicate the extent to which you tend to agree or disagree with each statement. In each case, make your choice in terms of how you feel right now, not what you have felt in the past or would like to feel. For all the statements that refer to your “problem,” answer in terms of problems related to social and/or public speaking anxiety. The words “here” and “this place” refer to this study. Some of these questions may seem to fit your experience more than others. Please just try to answer each question to the best of your ability. Choose the number that best describes how much you agree or disagree with each statement.

<table>
<thead>
<tr>
<th>Strongly disagree</th>
<th>Disagree</th>
<th>Undecided</th>
<th>Agree</th>
<th>Strongly agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>1) As far as I am concerned, I don't have any problems that need changing</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2) I think I might be ready for some self-improvement</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3) I am doing something about the problems that had been bothering me</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
4) It might be worthwhile to work on my problem

5) I'm not the problem one. It doesn't make much sense for me to be here

6) It worries me that I might slip back on a problem I have already changed, so I am here to seek help

7) I am finally doing some work on my problem

8) I've been thinking that I might want to change something about myself

9) I have been successful in working on my problem, but I'm not sure I can keep up the effort on my own

10) At times my problem is difficult, but I'm working on it

11) Being here is pretty much a waste of time for me because the problem doesn't have to do with me

12) I'm hoping this place will help me to better understand myself

13) I guess I have faults, but there's nothing that I really need to change

14) I am really working hard to change
15) I have a problem, and I really think I should work on it.

16) I'm not following through with what I had already changed as well as I had hoped, and I'm here to prevent a relapse of the problem.

17) Even though I'm not always successful in changing, I am at least working on my problem.

18) I thought once I had resolved my problem I would be free of it, but sometimes I still find myself struggling with it.

19) I wish I had more ideas on how to solve the problem.

20) I have started working on my problems but I would like help.

21) Maybe this place will be able to help me.

22) I may need a boost right now to help me maintain the changes I've already made.

23) I may be part of the problem, but I don't really think I am.

24) I hope that someone here will have some good advice for me.

25) Anyone can talk about changing; I'm actually doing
Using the scale below, please indicate to what extent each of the following items corresponds to the reasons why you are presently completing exposures by circling the appropriate number to the right of each item. We realize that the reasons why you are completing exposures at this moment may differ from the reasons that you initially began doing the exposures. However, we are interested to know why you are completing exposures at the present moment.

1 = Does not correspond at all  4 = Corresponds moderately  7 = Corresponds exactly

<table>
<thead>
<tr>
<th></th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
</tr>
</thead>
<tbody>
<tr>
<td>26) All this talk about psychology is boring. Why can't people just forget about their problems?</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>27) I'm here to prevent myself from having a relapse of my problem</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>28) It is frustrating, but I feel I might be having a recurrence of a problem I thought I had resolved</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>29) I have worries, but so does the next guy. Why spend time thinking about them?</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>30) I am actively working on my problem</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>31) I would rather cope with my faults than try to change them</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>32) After all I had done to try and change my problem, every now and again it comes back to haunt me</td>
<td></td>
<td></td>
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<td></td>
<td></td>
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<td></td>
</tr>
</tbody>
</table>

End of Block: URICA

Start of Block: CMOTS
1) Because other people think that it's a good idea for me to do exposures.  
2) Honestly, I really don't understand what I can get from doing exposures.  
3) For the pleasure I experience when I feel completely absorbed in an exposure.  
4) For the satisfaction I have when I try to achieve my personal goals in the course of exposures.  
5) Because I would feel guilty if I was not doing anything about my problem.  
6) Because I would like to make changes to my current situation.  
7) Because I believe that eventually it will allow me to feel better.  
8) I once had good reasons for completing exposure; however, now I wonder whether I should quit.
9) Because I would feel bad about myself if I didn't continue completing exposures

10) Because I should have a better understanding of myself

11) Because my friends think I should be in therapy

12) Because I experience pleasure and satisfaction when I learn new things about myself that I didn't know before

13) I wonder what I'm doing completing exposures; actually, I find it boring

14) I don't know; I never really thought about it before

15) Because I believe that doing exposures will allow me to deal with things better

16) For the interest I have in understanding more about myself

17) Because through doing exposures I've come to
see a way that I can continue to approach different aspects of my life

18) Because through doing exposures I feel that I can now take responsibility for making changes in my life

19) Because it is important for people to continue completing exposures until it's finished

20) Because I believe it's a good thing to do to find solutions to my problem

21) To satisfy people close to me who want me to get help for my current situation

22) Because I don't want to upset people close to me who want me to complete exposures

23) Because I feel that changes that are taking place through completing exposures are becoming part of me

24) Because I value the way completing exposures
Start of Block: Toast questions

What is your experience with wedding toasts?

- I have never seen a wedding toast
- I have seen a toast, but have never given one
- I have given one toast
- I have given two or more toasts

End of Block: Toast questions

Start of Block: Likelihood of completing exposures

1) How likely do you think it is that you will continue to do exposures after completing the study today?

- 0 Not at all likely
- 1 Slightly likely
- 2 Somewhat likely
- 3 Moderately likely
- 4 Very likely
- 5 Extremely likely
2) How often do you think you will continue to do exposures after completing the study today?

- 0 Not at all
- 1 Once or twice total
- 2 Once per week
- 3 Twice per week
- 4 A few times per week
- 5 Most days per week

End of Block: Likelihood of completing exposures

Start of Block: Phone number

We will be emailing you in 2 weeks with a link to a brief follow-up survey. Would you also like to receive this link via text message?

- Yes
- No

If yes, what's the best number to send the link to?

End of Block: Phone number
FU1 SUDS

Start of Block: Participant ID

Participant ID

End of Block: Participant ID

Start of Block: Accessibility Instructions

This survey may be inaccessible to respondents who use a keyboard only or a screen reader. If you are unable to complete this survey, please let us know and you will be provided an alternate accessible version of our survey. CU Boulder is committed to accessibility and is working with Qualtrics to improve the accessibility of their survey software.

End of Block: Accessibility Instructions

Start of Block: 1 - Pre BAT retest

1) What is your current anxiety level?

<table>
<thead>
<tr>
<th>No anxiety</th>
<th>Moderate anxiety</th>
<th>Worst anxiety</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>10</td>
<td>20</td>
</tr>
<tr>
<td>30</td>
<td>40</td>
<td>50</td>
</tr>
<tr>
<td>60</td>
<td>70</td>
<td>80</td>
</tr>
<tr>
<td>90</td>
<td>100</td>
<td></td>
</tr>
</tbody>
</table>

End of Block: 1 - Pre BAT retest

Start of Block: 2 - Post BAT retest

2) What is your current anxiety level?

<table>
<thead>
<tr>
<th>No anxiety</th>
<th>Moderate anxiety</th>
<th>Worst anxiety</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>10</td>
<td>20</td>
</tr>
<tr>
<td>30</td>
<td>40</td>
<td>50</td>
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<tr>
<td>60</td>
<td>70</td>
<td>80</td>
</tr>
<tr>
<td>90</td>
<td>100</td>
<td></td>
</tr>
</tbody>
</table>

End of Block: 2 - Post BAT retest

Start of Block: 3 - Peak BAT retest

3) What was your highest anxiety level during this task?

<table>
<thead>
<tr>
<th>No anxiety</th>
<th>Moderate anxiety</th>
<th>Worst anxiety</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>10</td>
<td>20</td>
</tr>
<tr>
<td>30</td>
<td>40</td>
<td>50</td>
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<td>60</td>
<td>70</td>
<td>80</td>
</tr>
<tr>
<td>90</td>
<td>100</td>
<td></td>
</tr>
</tbody>
</table>
What part of the speech was this?

- Beginning
- Middle
- End

End of Block: 3 - Peak BAT retest

Start of Block: 4 - Post recovery BAT retest

4) What is your current anxiety level?

No anxiety  Moderate anxiety  Worst anxiety

0  10  20  30  40  50  60  70  80  90  100

End of Block: 4 - Post recovery BAT retest

Start of Block: 5 - Pre new BAT

5) What is your current anxiety level?

No anxiety  Moderate anxiety  Worst anxiety

0  10  20  30  40  50  60  70  80  90  100

End of Block: 5 - Pre new BAT

Start of Block: 6 - Post new BAT

6) What is your current anxiety level?

No anxiety  Moderate anxiety  Worst anxiety

0  10  20  30  40  50  60  70  80  90  100

End of Block: 6 - Post new BAT
7) What was your highest anxiety level during this task?

<table>
<thead>
<tr>
<th>No anxiety</th>
<th>Moderate anxiety</th>
<th>Worst anxiety</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>10</td>
<td>20</td>
</tr>
<tr>
<td>30</td>
<td>40</td>
<td>50</td>
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<td>70</td>
<td>80</td>
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<tr>
<td>90</td>
<td>100</td>
<td></td>
</tr>
</tbody>
</table>

What part of the speech was this?

- Beginning
- Middle
- End

8) What is your current anxiety level?

<table>
<thead>
<tr>
<th>No anxiety</th>
<th>Moderate anxiety</th>
<th>Worst anxiety</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>10</td>
<td>20</td>
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<tr>
<td>30</td>
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<td>80</td>
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<tr>
<td>90</td>
<td>100</td>
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</tbody>
</table>
FU2 Questionnaire

Start of Block: Participant ID

Participant ID

End of Block: Participant ID

Start of Block: Instructions

Please read the following questions carefully and answer as honestly and accurately as possible. There is no right or wrong answer; please just be as honest as possible.

End of Block: Instructions

Start of Block: SPIN

Please indicate how much the following problems have bothered you during the past week. Mark only one box for each problem, and be sure to answer all items.

<table>
<thead>
<tr>
<th></th>
<th>Not at all</th>
<th>A little bit</th>
<th>Somewhat</th>
<th>Very much</th>
<th>Extremely</th>
</tr>
</thead>
<tbody>
<tr>
<td>1) I am afraid of people in authority</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>2) I am bothered by blushing in front of people</td>
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<td></td>
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<tr>
<td>3) Parties and social events scare me</td>
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<tr>
<td>4) I avoid talking to people I don't know</td>
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<tr>
<td>5) Being criticized scares me a lot</td>
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<tr>
<td>6) Fear of embarrassment causes me to avoid doing things or speaking to people</td>
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<td></td>
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<tr>
<td>7) Sweating in front of people causes me distress</td>
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<td></td>
<td></td>
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<tr>
<td>8) I avoid going to parties</td>
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<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
9) I avoid activities in which I am the centre of attention  
10) Talking to strangers scares me  
11) I avoid having to give speeches  
12) I would do anything to avoid being criticized  
13) Heart palpitations bother me when I am around people  
14) I am afraid of doing things when people might be watching  
15) Being embarrassed or looking stupid is among my worst fears  
16) I avoid speaking to anyone in authority  
17) Trembling or shaking in front of others is distressing to me  

End of Block: SPIN

Start of Block: MIS

Please answer the following questions as honestly as possible. There is no right or wrong answer.

<table>
<thead>
<tr>
<th></th>
<th>Very untrue of me</th>
<th>Untrue of me</th>
<th>Somewhat untrue of me</th>
<th>Somewhat true of me</th>
<th>True of me</th>
<th>Very true of me</th>
</tr>
</thead>
<tbody>
<tr>
<td>1) I believe that the more money you have, the happier you are</td>
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<td></td>
</tr>
</tbody>
</table>
Please answer the following questions as honestly as possible. There is no right or wrong answer.

<table>
<thead>
<tr>
<th>Statement</th>
<th>Not at all true</th>
<th>Slightly true</th>
<th>Somewhat true</th>
<th>Moderately true</th>
<th>Very true</th>
<th>Extremely true</th>
</tr>
</thead>
<tbody>
<tr>
<td>1) I know what I want to stand for in life</td>
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<td></td>
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</tr>
<tr>
<td>2) I am able to identify my core values</td>
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<td></td>
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<tr>
<td>3) Living by my values is important to me</td>
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</tr>
<tr>
<td>4) I have spent time reflecting on my values</td>
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</tr>
</tbody>
</table>

For each of the areas listed below consider how you most want to live your life. Then rate how IMPORTANT each domain is for you. This is NOT about how well you are doing in each area – it is about how important it is to you. Rate the importance you place in each domain using any number on the scale from 0 (not at all important) to 5 (extremely important). Each area need not be important to you – rate an area low if it is not important to you personally.

Consider each area according to your values, the important ways that you most want to live your life in each domain.
1) **Family:**
Participation in your relationships with your parents, children, other close relatives, people you live with, or whoever is your "family"

2) **Intimate relations:**
Being the kind of partner you want to be for your husband/wife or closest partner in life

3) **Friends:**
Spending time with friends, doing what you need to maintain friendships, or providing help and support for others as a friend

4) **Work:**
Engaging in whatever is your occupation, your job, volunteer work, community service, education, or your work around your own home

5) **Health:**
Keeping yourself fit, physically able, and healthy just as you would most want to do

6) **Growth and learning:**
Learning new skills or
For each of the areas of life listed below consider again how you most want to live your life. Then rate how SUCCESSFUL you have been living according your values during the past two weeks. These questions are NOT asking how successful you want to be but how successful you have been. Rate your success using any number on the scale from 0 (not at all successful) to 5 (extremely successful).

Consider each area according to your values, the important ways that you most want to live your life in each domain.

<table>
<thead>
<tr>
<th>SUCCESS at living your values</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
</tr>
<tr>
<td>Not at all successful</td>
</tr>
</tbody>
</table>

<p>| 1) Family: Participation in your relationships with your parents, children, other close relatives, people you live with, or whoever is your &quot;family&quot; |</p>
<table>
<thead>
<tr>
<th>0</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
</table>

<p>| 2) Intimate relations: Being the kind of partner you want to be for your husband/wife or closest partner in life |</p>
<table>
<thead>
<tr>
<th>0</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
</table>

<p>| 3) Friends: Spending time with friends, doing what you need to maintain friendships, or providing help and support for others as a friend |</p>
<table>
<thead>
<tr>
<th>0</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
</table>
Each statement below describes how a person might feel when starting therapy or approaching problems in their lives. Please indicate the extent to which you tend to agree or disagree with each statement. In each case, make your choice in terms of how you feel right now, not what you have felt in the past or would like to feel. For all the statements that refer to your “problem,” answer in terms of problems related to social and/or public speaking anxiety. The words “here” and “this place” refer to this study. Some of these questions may seem to fit your experience more than others. Please just try to answer each question to the best of your ability. Choose the number that best describes how much you agree or disagree with each statement.

<table>
<thead>
<tr>
<th>Strongly disagree</th>
<th>Disagree</th>
<th>Undecided</th>
<th>Agree</th>
<th>Strongly agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
</tbody>
</table>

1) As far as I am concerned, I don't have any problems that need changing
2) I think I might be ready for some self-improvement

3) I am doing something about the problems that had been bothering me

4) It might be worthwhile to work on my problem

5) I'm not the problem one. It doesn't make much sense for me to be here

6) It worries me that I might slip back on a problem I have already changed, so I am here to seek help

7) I am finally doing some work on my problem

8) I've been thinking that I might want to change something about myself

9) I have been successful in working on my problem, but I'm not sure I can keep up the effort on my own

10) At times my problem is difficult, but I'm working on it

11) Being here is pretty much a waste of time for me because the problem doesn't have to do with me

12) I'm hoping this place will help me to better understand myself
13) I guess I have faults, but there's nothing that I really need to change

14) I am really working hard to change

15) I have a problem, and I really think I should work on it

16) I'm not following through with what I had already changed as well as I had hoped, and I'm here to prevent a relapse of the problem

17) Even though I'm not always successful in changing, I am at least working on my problem

18) I thought once I had resolved my problem I would be free of it, but sometimes I still find myself struggling with it

19) I wish I had more ideas on how to solve the problem

20) I have started working on my problems but I would like help

21) Maybe this place will be able to help me

22) I may need a boost right now to help me maintain the changes I've already made

23) I may be part of the problem, but I don't really think I am
<table>
<thead>
<tr>
<th>24) I hope that someone here will have some good advice for me</th>
<th>□□□□□</th>
</tr>
</thead>
<tbody>
<tr>
<td>25) Anyone can talk about changing; I'm actually doing something about it</td>
<td>□□□□□</td>
</tr>
<tr>
<td>26) All this talk about psychology is boring. Why can't people just forget about their problems?</td>
<td>□□□□□</td>
</tr>
<tr>
<td>27) I'm here to prevent myself from having a relapse of my problem</td>
<td>□□□□□</td>
</tr>
<tr>
<td>28) It is frustrating, but I feel I might be having a recurrence of a problem I thought I had resolved</td>
<td>□□□□□</td>
</tr>
<tr>
<td>29) I have worries, but so does the next guy. Why spend time thinking about them?</td>
<td>□□□□□</td>
</tr>
<tr>
<td>30) I am actively working on my problem</td>
<td>□□□□□</td>
</tr>
<tr>
<td>31) I would rather cope with my faults than try to change them</td>
<td>□□□□□</td>
</tr>
<tr>
<td>32) After all I had done to try and change my problem, every now and again it comes back to haunt me</td>
<td>□□□□□</td>
</tr>
</tbody>
</table>

End of Block: URICA

Start of Block: CMOTS

Using the scale below, please indicate to what extent each of the following items corresponds to the reasons why you are *presently* completing exposures by circling the appropriate number to
the right of each item. We realize that the reasons why you are completing exposures at this moment may differ from the reasons that you initially began doing the exposures. However, we are interested to know why you are completing exposures at the present moment.

1 = Does not correspond at all  4 = Corresponds moderately  7 = Corresponds exactly

<table>
<thead>
<tr>
<th></th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
</tr>
</thead>
<tbody>
<tr>
<td>1) Because other people think that it's a good idea for me to do exposures</td>
<td></td>
<td></td>
<td></td>
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<td></td>
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<tr>
<td>2) Honestly, I really don't understand what I can get from doing exposures</td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>3) For the pleasure I experience when I feel completely absorbed in an exposure</td>
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<td></td>
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<td>5) Because I would feel guilty if I was not doing anything about my problem</td>
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<td>6) Because I would like to make changes to my current situation</td>
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<tr>
<td>7) Because I believe that eventually it will allow me to feel better</td>
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<td></td>
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</tbody>
</table>
8) I once had good reasons for completing exposure; however, now I wonder whether I should quit

9) Because I would feel bad about myself if I didn't continue completing exposures

10) Because I should have a better understanding of myself

11) Because my friends think I should be in therapy

12) Because I experience pleasure and satisfaction when I learn new things about myself that I didn't know before

13) I wonder what I'm doing completing exposures; actually, I find it boring

14) I don't know; I never really thought about it before

15) Because I believe that doing exposures will allow me to deal with things better
<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
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</thead>
<tbody>
<tr>
<td>16) For the interest I have in understanding more about myself</td>
<td></td>
</tr>
<tr>
<td>17) Because through doing exposures I’ve come to see a way that I can continue to approach different aspects of my life</td>
<td></td>
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<tr>
<td>18) Because through doing exposures I feel that I can now take responsibility for making changes in my life</td>
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<tr>
<td>20) Because I believe it’s a good thing to do to find solutions to my problem</td>
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</tr>
<tr>
<td>21) To satisfy people close to me who want me to get help for my current situation</td>
<td></td>
</tr>
<tr>
<td>22) Because I don’t want to upset people close to me who want me to complete exposures</td>
<td></td>
</tr>
<tr>
<td>23) Because I feel that changes that</td>
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</tbody>
</table>
Read each situation carefully and answer two questions about that situation. The first question asks how anxious or fearful you feel in the situation. The second question asks how often you avoid the situation.

If you come across a situation that you ordinarily do not experience, imagine "what if you were faced with that situation," and then, rate the degree to which you would fear this hypothetical situation and how often you would tend to avoid it.

Please base your ratings on the way that the situations have affected you in the last week. Fill out the following scale with the most suitable answer provided below.

<table>
<thead>
<tr>
<th>Fear or anxiety</th>
<th>Avoidance</th>
</tr>
</thead>
<tbody>
<tr>
<td>0 = None</td>
<td>1 = Never (0%)</td>
</tr>
<tr>
<td>1 = Mild</td>
<td>2 = Occasionally (1-33%)</td>
</tr>
<tr>
<td>2 = Moderate</td>
<td>3 = Often (33-67%)</td>
</tr>
<tr>
<td>3 = Severe</td>
<td>3 = Usually (67-100%)</td>
</tr>
</tbody>
</table>

- 1) Telephoning in public
- 2) Participating in small groups
- 3) Eating in public places
- 4) Drinking with others in public places
- 5) Talking to people in authority
<p>| | | | | | | | | | | | | | | | | |</p>
<table>
<thead>
<tr>
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</thead>
<tbody>
<tr>
<td>6) Acting, performing, or giving a talk in front of an audience</td>
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<td>7) Going to a party</td>
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<td>8) Working while being observed</td>
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<td>9) Writing while being observed</td>
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<td>10) Calling someone you don't know very well</td>
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<td>11) Talking with people you don't know very well</td>
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<td>12) Meeting strangers</td>
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<td>13) Urinating in a public bathroom</td>
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<td>14) Entering a room when others are already seated</td>
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<td>15) Being the center of attention</td>
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<td>16) Speaking up at a meeting</td>
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<td>17) Taking a test</td>
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<td>18) Expressing a disagreement or disapproval to people you don't know very well</td>
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End of Block: LSAS

Start of Block: Likelihood of completing exposures

1) How often did you continue to do exposures since the study ended?

- 0 Not at all
- 1 Once or twice total
- 2 Once per week
- 3 Twice per week
- 4 A few times per week
- 5 Most days per week

2) If you completed exposures since the study ended, what motivated you to do so?

________________________________________________________________
2) If you did not complete exposures since the study ended, what prevented you from doing so?

________________________________________________________________

3) How likely do you think it is that you will continue to do exposures in the future?

○ 0 Not at all likely
○ 1 Slightly likely
○ 2 Somewhat likely
○ 3 Moderately likely
○ 4 Very likely
○ 5 Extremely likely

End of Block: Likelihood of completing exposures

Start of Block: Types of exposures

5) To what extent do the reported exposures reflect behaviors that you had to do?

○ 0 Not at all
○ 1 Slightly
○ 2 Somewhat
○ 3 Moderately
○ 4 Very much
○ 5 Extremely
4) To what extent do the reported exposures reflect new ways of challenging yourself in social situations?

- 0 Not at all
- 1 Slightly
- 2 Somewhat
- 3 Moderately
- 4 Very much
- 5 Extremely

End of Block: Types of exposures
Appendix C: Recruitment Materials
**Sona Study Listing**

**Lab study:**

Duration: 150 minutes (Part 1)
- 90 minutes (Part 2)

Credits: 5 Credits (Part 1)
- 3 Credits (Part 2)
(8 Credits total)

**Description:** This is a 2-part, 9-credit study. To participate you must:

- Take a brief (20 min) online survey at least 24 hours before your first study session to earn your first study credit. The survey is available at [https://cuboulder.qualtrics.com/jfe/form/SV_aXW1Rj71CMcgecR](https://cuboulder.qualtrics.com/jfe/form/SV_aXW1Rj71CMcgecR)

- 2 weeks after your lab sessions, you will receive an email about a VERY IMPORTANT 5-10 minute follow-up survey.

If you sign up for this study, please commit to taking the follow-up survey as soon as you receive the email alert. You will not receive separate credit, but it is part of participating in this study.

**Preparation:** Please do not wear a dress on the day of the study or use marijuana within 48 hours before the study.
AFRAID OF PUBLIC SPEAKING?
FEEL ANXIOUS IN SOCIAL SITUATIONS?

YOU MAY BE ELIGIBLE TO PARTICIPATE IN A RESEARCH STUDY AT CU BOULDER!

The CU Boulder Psychology Department is looking for participants in a study looking at a brief intervention for social and public speaking fears. **Participants will earn $32 for completing the study**

In order to participate, you must:
- Be **18-25 years of age**
- Be physically healthy
- Qualify based on a short online survey

If you are interested, please sign up for the study on the CU Psychology Paid Research website at [ucboulderpaid.sona-systems.com](http://ucboulderpaid.sona-systems.com). Or contact us at [intervention-study@colorado.edu](mailto:intervention-study@colorado.edu) or 720-514-9086 to sign up directly.

“Brief Social Anxiety Intervention Study”
Principal Investigator: Rebecca L. Schneider, M.A.
Online Ad

Title: Looking for Young Adults with High Social Anxiety for Paid University of Colorado Boulder Study

Ad content:

- Do you fear public speaking? Feel highly anxious in social situations?
- Have no major health problems?
- Aged 18-22?

You may be eligible to participate in a paid study at the University of Colorado Boulder.
Participation includes completing questionnaires, social tasks, assessments, and a brief intervention for social and public speaking anxiety.

Interested? Please email us at intervention-study@colorado.edu or call us at 720-514-9086 and leave your 1) name 2) contact information and 3) reference to Craig’s List ad. Thank you!
**Buff Bulletin**

**Title:** Young Adults with Public Speaking Anxiety Needed for Paid Study

**Content:** Do you fear public speaking or feel highly anxious in social situations? Aged 18-25? Need money this summer?

You may be eligible to participate in a paid study at CU Boulder. You will be paid $32 for completing a brief, two-part study. Participation includes completing questionnaires, social tasks and a brief intervention for social and public speaking anxiety.

Contact [intervention-study@colorado.edu](mailto:intervention-study@colorado.edu) for more information or sign up directly for experiment 1022 through [Paid Sona](https://www.paidsona.com).
Appendix D: Other Materials
Electrode Placement

**Impedance Cardiograph & GSC**

- ECG LO
- + ECG HI
- GROUND
- CCS LO
- + CCS HI
- SNS LO
- + SNS HI
- Not Used
- GSC LO
- + GSC HI
Novel BAT Room Setup
Judge SUDS Scoring Guide

SUDS (Subjective Units of Discomfort):

*Rate this based on how anxious the person looks, not how anxious you think they feel

0  Look fine (either enjoying the speech or just not bothered by it)
1  Look a little uncomfortable (a little stiff, stumble or pause occasionally)
2  Look nervous (easy to tell nervous, but still making it through the speech)
3  Look very nervous (not speaking, crying, or barely functioning)

SUDS: _______________

Length: ____________