Effects of Problem Relevant Humor on Anxiety, Symptom Acceptance, and Behavioral Engagement in Socially Anxious Young Adults

by

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Abstract

The effects of problem relevant humor (e.g., humor about social concern in a person with social anxiety disorder) have not been systematically addressed in psychotherapy research. Exposure to humorous material has been shown to have a positive influence on cognitive appraisal and emotion regulation. Further, humorous material that is personally or contextually relevant has been found to increase enjoyment of that humor. Currently, most of the clinical literature on humor is theoretical, or has focused on the use of humor as an individual coping style. However, the effects of utilizing problem tailored comedic material as a therapeutic technique would benefit from further attention, to determine whether it has the potential to "normalize" specific problem related experiences. Therefore, the present study was an investigation of the effects of applied relevant humor on socially anxious individuals.

Sixty-five undergraduate students who met criteria for self-reported social anxiety were randomly assigned to one of two groups: psychoeducation with no humor, or psychoeducation with social anxiety relevant humor. The procedure was intended to simulate a psychoeducational session, which is a standard component of cognitive-behavioral therapy (CBT) for social anxiety. Whereas in the nonhumor condition participants read and completed psychoeducational materials and watched nonhumorous relevant video clips, in the relevant humor condition, participants read identical psychoeducational materials, but watched social anxiety relevant humorous video clips.

Although participants in the humor condition demonstrated a stronger trend in reduction of state anxiety at post-intervention, there was no significant difference in state

anxiety scores between groups. Further, there were no significant differences in social anxiety symptom acceptance between groups. Post-intervention self-report ratings of overall self-esteem, social self-esteem, coping humor, fear of negative evaluation, and social perfectionism were not significantly different between groups. Although no significant differences between groups were detected in selection of behavioral tasks, participants in the humor condition completed significantly more behavioral tasks related to self-disclosure of social anxiety than participants in the nonhumorous group. Further, overall task compliance, reflected in the proportion of completed tasks to selected tasks, was significant for the humor group, but nonsignificant for the nonhumor group. Implications for the use of problem relevant humor in clinical practice are addressed.

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CHAPTER I.

Introduction

Humor: Overview and Background

Writer and cartoonist Frank Clark conveyed, “The next best thing to solving a problem is finding some humor in it” (Force, 2010). Humor has a far-reaching role in everyday life and has been shown to enhance coping and reduce distress. Moreover, humor involves complex social, cognitive, emotional, and behavioral processes. However, research on utilizing specific available comedic material in the context of therapy would benefit from a more empirical approach to determining its potential as a tool to aid in therapeutic efforts.

From a psychoevolutionary perspective, humor has been described as a socially adaptive phenomenon that promotes community by signaling positive feelings and defusing danger. Humor further signals “false alarm” and thereby has the power to minimize perceived threat and invite relief (Ramachandran, 1998). Further, Darwin (1872, as cited in Keith-Spiegel, 1972) considered humor an adaptive evolutionary feature, and Gervais and Wilson (2005) described humor and laughter as derivatives of natural selection. Martin (2007) has pointed out that as neurocognitive and language abilities evolved, humor too evolved in complexity, eventually surfacing in advanced social interchange, and becoming an important means of coping.

Major Theories of Humor

The adaptive qualities of humor can be understood according to five different theories

that have emerged in psychological research. These theories include: psychoanalytic, superiority/disparagement, arousal, incongruity, and reversal theory. Each of these theories assumes that humor plays a role in buffering anxiety and facilitating emotion regulation. According to Martin (2007), Freud believed that the reason humankind values humor is because when the superego, or conscience, is cognitively distracted by humor, it allows for the appropriate expression of inappropriate impulses, and concomitant relief. Freud's psychoanalytic conception of humor was essentially an emotional discharge theory that assumed that individuals appreciate humor because it allows for the release of or relief from strong or tense emotions, and an ability to find humor in perceived threats to the self. In this view, humor is mainly used to neutralize repressed or suppressed desires and to overcome sociocultural inhibitions. Freud appreciated the ability of humor to allow an individual to regulate negative emotion and yet remain rational and honest with the realities of a situation. According to psychoanalytic theory, humor is considered a mature and beneficial "defense mechanism," or method of self-regulation (Vaillant, 1992), and an appropriate social conduit for the expression of complex emotion (Tracy, Myers, & Scott, 2006).

Another related theory of humor, the superiority/disparagement theory, assumes that one laughs or appreciates humor because one feels aggressively superior to the subject of the humor. Keith-Spiegel (1972) highlighted that Aristotle described the function of humor as a victorious response. Similarly, during the seventeenth century, Thomas Hobbes wrote in his work, *Human Nature* (1651; as cited in Morreall, 1987), that laughter signals recognition of self-superiority in appraising oneself in relation to others, or against one's former self. Humor has still recently been considered a type of "playful aggression" (Gruner, 1997). Gruner too

argued that the superiority theory even extends to the self, since one can feel superior to a past self in reflecting on one's current state against the backdrop of historical mistakes and imperfections.

The arousal theory of humor captures the role of psychological and physical arousal but focuses on physiological tension release. Whereas Freud proposed that humor is a way of defusing repressed energy, Berlyne (1972) discussed the importance of a balance between arousal and pleasure, such that moderate arousal in a nonthreatening context has the potential to produce pleasure. In contrast, high arousal may escalate into a negative experience. Similar to the emotions of anger, fear, and anxiety, amusement too has been shown to activate the sympathetic-adrenomedullary system, or the fight-or-flight system (Martin, 2007). Further, heart rate and galvanic skin response have been found to accelerate in response to humor (Langevin & Day, 1972), and the punch line of a joke is thought to neutralize hyperarousal, resulting in pleasure (Martin, 2007). Further, the "transfer of excitation" effect has been theoretically proposed in relation to the humorous resolution of anticipatory anxiety that takes place when negative emotions are rechanneled and offset by positive emotions, such as in response to humor (Martin, 2007).

Studies have also shown that, physiological arousal, in itself, may influence perceptions of humor, such that increased arousal coincides with higher ratings of funniness. Schachter and Wheeler (1962) found that when they manufactured high arousal by administering epinephrine to unknowing participants, high arousal participants rated video clips as more amusing than participants who were administered chlorpromazine (a dopamine

antagonist meant to decrease dopamine). Participants made external environmental attributions and assumed that their physiological amusement responses related to the funniness of the humor material, suggesting that attributions are influenced by physiological arousal. Schachter and Wheeler's research findings attest to the complex processes in humor processing, and suggest that individuals may naturally attribute physiological arousal in response to humor to the humorous stimulus, signifying an externalized attribution process.

The incongruity theory of humor is generally considered predominant today and receives the most attention in the literature. Rather than focusing on the physiological (arousal theory) or emotional (psychoanalytic and superiority theories) functions of humor, incongruity theory emphasizes cognition. It assumes that the cognitive capacity to note and understand incongruous events is necessary to experience humor (Berger, 1993; McGhee, 1979; Veatch, 1998). Further, Hans Eysenck (1942) addressed the cognitive elements of humor in explaining that laughter occurs when a person spontaneously processes incongruent concepts or emotions after realizing them from a more objective angle. Koestler (1964) utilized the term "bisociation" to describe situations in which two opposing concepts are concurrently held, such as in response to humor. The resolution of incongruity can, in effect, also bring forward ideas that were not yet considered by the audience (Pien & Rothbart, 1977). Moreover, Raskin (1985) suggested that in response to humor a cognitive shift between mental scripts is activated, facilitating flexibility in cognitive-social scripts.

Suls (1972, 1983) likened the processing of humor to a problem-solving paradigm. He proposed that in response to a joke, the audience automatically makes a prediction of the

outcome of the joke and immediately searches for a cognitive rule that will allow the content to be synchronized and logical. When the cognitive rule is detected and applied, the joke is considered humorous and yields laughter. If one cannot match a cognitive rule (or its violation) to the content, however, the joke remains incongruous and unfunny.

Apter (1991) too described the idea that during humor processing, opposing thoughts can coexist in one's mind in relation to a single object, allowing us to embrace polarized perceptions. Apter (1991) proposed the "reversal theory" of humor, which assumes the simultaneous interaction of mental states. He distinguished between the "paratelic" mode and the "telic" mode, and described that individuals regularly vacillate throughout both modes each day in a fluid reversal of states. The "paratelic" mode conveys playfulness and the proclivity to laugh and joke, and the "telic" mode conveys goal-oriented, deliberate, and serious behavior. Apter, therefore, described the malleability of humor in shaping cognitive reappraisal, and explained that humor has the power to facilitate a shift from the serious (telic) to the light (paratelic) state.

Within the framework of social cognition, Wyer and Collins' (1992) theory of humor elicitation aligns with Apter's (1991) theory. They explained that humor involves the synchronized engagement of two different schemas related to a single object or event, and that humor is only actuated if the second schema has the effect of facilitating a construal that provides a weakening of weight or meaning in relation to the original schema. In line with Raskin and Apter's theories, they described that humor necessitates a reappraisal of an event or a reconsideration of the event as less serious than it originally appeared.

Saper (1987) provided a functional analysis of humor through a cognitive-behavioral lens. It included the sequence of a humorous "stimulus," "organismic variables" (such as subjective appreciation of the material), "response" (e.g. laughter, flexibility in thinking), and "consequences" (e.g. execution of an action). He described that the humorous stimulus is configured from compound factors, structural arrangement, and subject matter, and that it needs to be understood and appreciated intellectually without requiring too much or too little of the receiver. Further, according to Saper's theory and nomenclature, the humorous structure of the stimulus is composed of the setup of the joke, or the framework of delivery of the incongruity. Content is then defined by the subject of the joke and the potential for it to elicit amusement. Subjects such as sex, aggression, and personally relevant topics are considered particularly comedic. The "type" of humor refers to the delivery of humor, such as verbal humor, visual humor, satire, and irony. The organismic element refers to an individual's processing of the humor through one's own personal schematic beliefs and one's physical and emotional responses to the material. Next, the humorous response is captured by a psychological reaction (such as a change in motivation) and a physical reaction to the material (such as laughing). Finally, the consequences refer to resulting reinforcing properties of the material when it is appreciated (such as positive affect, shift in cognitions, or behavioral activation).

Raskin (1985) explained that despite multiple motivational theories of humor it is clear that most theories agree that the humor process involves mechanisms for cognitive and affective regulation, and contributes to temporary remission of or reprieve from tension. Further, he maintained that the various theories of humor are not fragmented but actually

complement one another and capture different layers and functions of humor. In addition to pointing out their commonalities, Raskin well-assimilated humor theories by illuminating their distinctive qualities, such as highlighting emphasis on the stimulus within incongruity theory, emphasis on the relationship between characters in superiority theory, and emphasis on the emotional experiences of the audience in relief-arousal theories.

Another classification system of humor has been formulated by Speck (1987, 1991), and also well-integrates predominant theories of humor. He described the three forms of prevalent humor in comedic advertising: arousal-safety, incongruity-resolution, and disparagement humor, and noted that the "arousal-safety" effect cultivated by humor is particularly popular in advertising. The arousal-safety theory operates on the assumption that in response to humorous stimuli, the audience will experience temporary anxiety for the welfare of themselves or others in relatable predicaments. However, the fear and anxiety is defused when the audience judges that the object of the dilemma or anxiety is in fact safer than originally thought to be, or learn that undesirable consequences of the anxiety-provoking situation are slight. Further, Speck described that the "arousal-safety" effect produces a surge of wishing well for the relatable character-object of the humor, contributing to an emotional, vicarious bonding with a fictional character that is faced with a predicament that is familiar. Speck termed the combination of "arousal-safety" and "incongruity resolution" mechanisms of humor as "sentimental comedy." Within sentimental comedy, the ability to easily relate to the content and character-object involved in the humorous message is expected to facilitate the audience's experience of anxiety/arousal for the target, an increase in low positive affect (e.g. relief, safety), and increased acceptance of the anxiety-related situation.

Neuroimaging Findings and Humor

Support for the benefits of humor as a potential therapeutic agent has also come from neuroimaging studies that have evidenced that specific brain areas related to pleasure are activated when there is a positive affect produced in response to exposure to humor. Exposure to both language mediated and visually mediated humorous material have been found to produce heightened activity in reward brain areas such as the amygdala and nucleus acumbens (Watson, Matthews, & Allman, 2007). The mesolimbic dopamingergic reward areas have also been implicated in response to humor (Mobbs, Greicius, Abdel-Azim, Menon, & Reiss, 2003). Moreover, Franklin Jr. and Adams Jr. (2011) found that humorous clips of comedians that were rated higher in funniness produced more activity in reward centers of the brain (putamen, caudate, and nucleus accumbens). Activation of more developed areas of the brain reflecting greater complex cognitive circuitry, such as the cingulate cortex and frontoinsular cortex, has also been reported in response to humorous stimuli (Watson et al., 2007). Therefore, it appears that processing humor is a complex process that evidences significant patterns of brain activation in reward regions of the brain.

Types of Humor

Most research on the therapeutic benefits of humor has focused on styles of humor use. Martin, Puhlik-Doris, Larsen, Gray, and Weir (2003) described two broad types and four subtypes of humor: Negative humor, which includes self-defeating and aggressive humor, and positive humor, which includes self-enhancing and affiliative humor. Affiliative humor includes behaviors such as making entertaining statements, telling jokes, and bantering

playfully. It assists in the ability to forge and enhance social relationships, entertain others, and allay tensions. This type of humor is considered to be generally friendly and uplifting and promotes sociability. Self-enhancing humor captures a style of seeing experiences through a positive lens, using humor both individually and amongst others, laughing at the absurdities of life, and utilizing humor as a coping skill in response to stress. Aggressive humor includes the propensity for critiquing and appraising others negatively, such as in utilizing sarcasm or offensive humor. It might also include pressured and impulsive humor, and using humor despite negative consequences (such as offending others). Sometimes it is intended to artificially promote oneself. Lastly, self-defeating humor is self-critical in nature and entertains others at the expense of oneself, or might involve laughing with others when one is being ridiculed in order to gain approval through amusement. Further, it is defensive in nature and is essentially an avoidance strategy whereby one can feign lack of concern and hide feelings. These humor styles are often employed naturally and precipitately, without calculation as to how or why one says something humorous (Martin, 2007).

Humor and Emotion Regulation

Emotion regulation is a process whereby one is able to recognize his emotions and adjust his experience accordingly (Gross & John, 2003). It is intended to produce buffering effects on negative emotion in response to stress (Goldin, Manber, Hakimi, Canli, & Gross, 2009). Empirical research on the effects of humor on emotion regulation is limited. Fredrickson and Levenson (1998) proposed that humor introduces positive emotion, which has the effect of replacing negative emotion. Participants who viewed an amusement- or

contentment-eliciting film after having viewed a fear-inducing film demonstrated faster cardiovascular recovery than participants in neutral or sad exposure conditions (Fredrickson & Levenson, 1998). Fredrickson and Levinson (1998) offered that although it is possible that the induction of positive emotion accelerated recovery from negative emotion and arousal, it is also possible that the positive emotion induction does not lead to a "recovery" from negative emotion, but rather an addition of or supplement with positive emotion. They maintained that although positive emotions do not necessarily result in specific behavioral scripts or action tendencies, they no less generate the effect of widening an individual's range of thoughts and emotions, leading to more flexibility in perceptions and behaviors, and momentary resolution of avoidant behaviors. Fredrickson and Branigan (2005) later described the "broaden-and-build" model that suggests that positive emotions provoke the expansion of emotional processing, thoughts, and behaviors. They explained that whereas negative emotions narrow cognitive, affective, and behavioral repertoires, positive emotions are effective at enhancing attention and flexibility in thoughts and behaviors.

Although research is limited, experimenters have examined the effects of humorous stimuli on emotion regulation and have proposed possible mechanisms of effect. Danzer, Dale, and Klions (1990) found that when female participants were randomly assigned to a condition in which they were exposed to a humorous tape that consisted of 11 minutes of listening to Robin Williams and Bill Cosby, versus listening to a nonhumorous tape (geology lecture) or no tape (wait-list control condition), listening to the humorous tape reversed the negative effects of a depressive mood-induction by facilitating positive affect and returning participants' affect to baseline (as reflected in self-report and measured muscle tension).

These findings provide support for the therapeutic effects of humor on short-term mood influence. Further, in a study of the effects of humor on anticipatory anxiety, participants exposed to a humorous tape reported less anxiety and stress in response to an impending threat (a shock), when compared to participants exposed to a humorless tape or no tape, providing support for the emotion buffering properties of humor (Yovetich, Dale, & Hudak, 1990).

Newman and Stone (1996) too found that when humor has been manipulated experimentally, it has been shown to mitigate distress. Participants who were asked to induce humor on their own by creating humorous narratives in response to a distressing film reported lower levels of negative affect, irrespective of levels of trait humor, implicating the protective effects of humor even in individuals low in trait humor. Further, exposure to humor has been shown to enhance immune functioning as reflected in detection of higher levels of infection- and stress-buffering chemicals (Martin & Dobbin, 1988; McClelland & Cheriff 1997), and increased tolerance of pain, such as supported by participants' prolonged engagement on a cold pressure stimulation task when exposed to a humorous video compared to a nonhumorous video (Weisenberg, Raz, & Hener, 1998).

In considering the role of humor in emotion regulation and attempting to isolate the mechanisms mediating the effects of humor, Strick, Holland, van Baaren, and van Knippenberg (2009) described that the incongruity-resolution model assumes that the allocation of resources to processing humor dominates attentional resources and may reduce negative affect by serving as a cognitive distraction. They instructed participants to view

minimally negative, strongly negative, and neutral pictures and subsequently view a positive-nonhumorous stimulus or an equivalently positive-humorous stimulus, and to rate how unpleasant they felt. Ratings of feelings of unpleasantness were lower in response to the humorous stimulus than when followed by an equally positive nonhumorous stimulus, and more cognitively demanding humorous stimuli were associated with even greater reductions in ratings of unpleasantness. Strick and colleagues therefore suggested that humor might reduce unpleasant feelings by the mechanism of distraction during competing processing of information.

Samson and Gross (2012) recently explored the role of humor in emotion regulation as well. Individuals were shown 30 negative or distressing pictures (e.g. skulls, soldiers, handicapped people, car accidents, and dental check-ups) and were asked to rate their positive and negative emotions. They were then reshown the pictures and asked to use a positive or negative humorous orientation to reappraise the stimuli. For example, in the positive condition, individuals were told to reappraise the pictures in an accepting and sympathetic vein and to concentrate on the peculiarities of the human experience without becoming critical. In the negative condition, individuals were directed to mock the contents of the picture and essentially laugh "at" (rather than laugh "with") the content. When participants were shown negative and positive pictures that were accompanied by negative and positive humorous captions, individuals were also given the opportunity to generate humorous statements of their own in response to the pictures. Both exposures to positive and negative humor contributed to greater positive affect, when compared to a condition that asked participants to view negative images without humorous captions. However, positive humor

was significantly more effective than negative humor at up-regulating positive emotion. Further, both positive "good-natured" and negative "mean-spirited" humor led to significant reductions in negative emotion, compared to the neutral condition with no humor induction. Samson and Gross (2012) suggested that perhaps positive humor has the ability to enhance cognitive reappraisal, and negative humor may lead to cognitive distancing. Further, they discussed that the short-term and long-term effects of either type of humor remained unclear but that both seem to enhance state emotion regulation.

Although cognitive distraction is conceivable as one possible mechanism in humor that contributes to lower negative affect (Strick et al., 2009), others have emphasized the mechanism of cognitive distancing (Samson & Gross, 2012) and the meaningful minimization of situational fears or consequences (Lefcourt et al., 1995; Martin & Lefcourt, 1983; O'Connell, 1976). However, research exploring mediating mechanisms of humor on emotion regulation is limited and requires further experimental investigation.

Humor, Cognitive Appraisal, and Coping Style

Cognitive reappraisal, or the ability to generate new, alterative thoughts that challenge preexisting thoughts, has been shown to be an important component in self-regulation (Gross & John, 2003; Lazarus, 1991). Lazarus and Folkman (1984) proposed a cognitive model that explained that a person's level of stress depends on his appraisals of experiences and ability to cope. Humor has been found to influence coping appraisals and increase positive appraisals. Further, the ability of humor to influence reappraisal and thereby reduce the perceived severity of a situation has been found effective in recasting anxiety-provoking situations and

enhancing motivation (Kuiper et al., 1995). Kuiper, Martin, and Olinger (1993) considered sense of humor an important and distinct variable in response to coping with stress. They found that individuals who reported higher use of coping humor were more likely to rate a challenging exam as less threatening (Kuiper et al., 1993). They described that this finding provided support for the "event-enhancement" component of humor that presumes that individuals who utilize humor are more likely to interpret a situation as a positive challenge rather than a threat, such as reflected in self-report ratings prior to exams or evaluative tasks (e.g. Kuiper, 2012; Kuiper, MeKenzie, & Belanger, 1995).

Further, Kuiper et al. (1995) found that individuals with higher endorsements of utilizing coping humor evidenced a significantly higher number of positive appraisals in response to an evaluative drawing task, and lower appraisals of threat before their first efforts. Individuals with higher coping humor also reported more positive emotion, and demonstrated greater motivation and efforts during the task, as reflected in greater time spent on the task. Furthermore, Vilaythong, Arnau, Rosen, and Mascaro (2003) found that exposure to humor (a 15-minute comedy video) resulted in significant increases in reported state hopefulness (an individual's projections for his or her future), relative to individuals who viewed a neutral video. Therefore, it appears that even exposure to humor might serve as a useful channel to increase positive appraisals, such as related to realistic hopefulness.

Research has further suggested that utilizing humor as a coping style enhances tolerance of distress. Bizi, Keinan, and Beit-Hallahmi (1988) found that there is a positive relationship between actively producing humor and competence at coping with stress. They instructed 159 soldiers in the Israeli army to produce peer evaluations on use of humor and

performance under duress. They found that high levels of humor were positively associated with level of performance (as rated by others), an association that was particularly amplified in individuals who were rated high in producing humor. They explained that humor mitigates stress by allowing individuals to perceive targets of stress and their responses to stress more flexibly. Similarly, during qualitative interviews, prisoners of war (during the Vietnam War) described humor as a predominant coping mechanism (Henman, 2001). Further, research has indicated that even an appreciation of humor was associated with enhanced coping with physical and emotional distress, such as reflected in higher thresholds of discomfort on a nerve stimulation test after exposure to humorous stimuli in individuals who scored higher on a questionnaire that assessed use of humor as a coping style (Hudak, Dale, Hudak, & DeGood, 1991).

Overholser (1992) found that coping humor correlated with reduced depression and loneliness, and greater self-esteem. Abel (2002) found that irrespective of gender, high sense of humor predicted greater adaptive appraisal of events and lower reported stress despite similar levels of everyday problems reported over two months. Similarly, Kelly (2002) found that self-rated sense of humor and level of worry were negatively correlated.

Nezu, Nezu, and Blissett (1988) found that coping sense of humor significantly predicted self-reported reduction in overall distress and depressive symptoms but not a reduction in anxiety symptoms. However, investigators included a trait measure of anxiety at baseline and two time points (at baseline and 2-month follow up) but did not include a state measure of anxiety. Nonetheless, Nezu and colleagues maintained that based on their

findings, it appeared that humor both moderated initial situation-based perceptions of threat and facilitated greater coping with potential negative situational tensions.

Martin (2007) described at length how humor could augment and facilitate positive social relationships. Individuals with higher sense of humor reported enhanced positive mood and social confidence (Hampes, 1999; Overholser, 1992; Ruch & Carrell, 1998; Thorson & Powell, 1996). Further, exercising a sense of humor has shown the potential to enhance interpersonal communication (Kane, Suls, & Tedeschi, 1977), social status (Salovey, Rotman, Detweiler, & Steward, 2000) romantic relationships (Bippus, 2000; Ziv & Gadish, 1989) social support (Salovey et al., 2000), and attractive image (Bressler & Balshine 2006; Buss, 1988; Murstein & Brust, 1985). Moreover, Nezlek and Derks (2001) found that using humor as a coping strategy was positively associated with satisfaction in one's social life. In contrast, self-reported social anguish and avoidance were negatively correlated with utilizing humor (Kuiper & Martin, 1998a).

Although studies have provided support for the benefits of humor, negative findings have highlighted the importance of utilizing humor judiciously. For example, Dorz, Novara, Sica, and Sanavio (2003) found that HIV and oncology healthcare workers who endorsed utilizing humor as a coping method were more likely to report burnout. Self-report measures were limited in explaining the role of sense of humor in mediating or moderating emotional burnout. Further, high levels of coping humor were associated with higher self-reported levels of depersonalization and emotional exhaustion. Although the researchers suggested that coping humor might paradoxically increase tension, it is possible that coping humor among

oncology and HIV healthcare workers might have coincided with emotional avoidance, or insufficient emotional processing. Therefore, it is clear that although there is generous research supporting the use of humor as a protective coping style, and as an effective tool for increasing psychological and emotional flexibility, it should not take the place of processing emotional experiences.

Problem Relevant Humor

The field of comedy has done well to capitalize on the humor inbuilt in social and interpersonal distresses and vulnerabilities, since these unsolicited experiences are so readily accessible and familiar to the human audience. Research in nonclinical settings has suggested that humor that is personally relevant or familiar is considered more gratifying (Cunningham & Derks, 2005; Martindale & Moore, 1988; Saper, 1987; Zajonc, 1968). Specifically, Cunningham and Derks (2005) noted that relevant humor (as a function of experience with the content of the humor) allows for the delivery of humor to be more instantly available and therefore, more enjoyable.

Humor that is matched to relevant experiences or emotional states is preferred and produces stronger effects. Strickland (1959) found that when hostility or sexual desire were induced, individuals in the hostility condition appreciated hostile humor more than controls, and individuals in the sexual desire condition appreciated sexual humor more than controls, emphasizing the role of congruence in humor appreciation. Dworkin and Efran (1967) manipulated anger in participants (by having an experimenter treat them hostilely) and found that angry participants preferred hostile humor more than nonangered participants. They also

found that exposure to humorous recordings contributed to significantly lower ratings of anger and anxiety in angered participants. Prerost and Brewer (1977) found that hostile but nonthreatening humor led to greater reductions in anger and higher ratings of funniness, suggesting that hostile humor that is aggressive but not personally threatening might offer a significant mood buffer. Speck (1991) postulated that in response to disparagement or aggressive humor, the arousal reaction is presumably externalized and attributed to the wit or technique of the humor, and not to the actual threat of the material, which is appreciated by the audience because of the entertaining quality of the content.

Research findings have demonstrated that the relevance and accessibility of the content of humorous material enhances humor appreciation. In an investigation of humor appreciation in college students, Cetola (1988) found that higher outcome ratings in response to video clips that were considered highly relatable (i.e. on the topics of "Puberty" and "Marijuana") suggested that direct experience with the particular nature of the humorous material increased recognition and appreciation of the material (as reflected in higher enjoyment ratings). Comedy routines included eight topics, and were presented by comedians Woody Allen, Hudson and Landry, and Bill Cosby. Offensiveness of material did not produce negative effects on ratings of funniness. Further, feelings of inadequacy in social situations (measured at baseline on a social inadequacy self-report test; Janis & Field, 1959) did not produce any significant main effects with ratings of offensiveness of the comedy routines, suggesting that feelings of social inadequacy did not impede enjoyment in humor or increase perceived offensiveness of material. Although being offended by a comedy routine in general produced lower ratings of funniness, ratings of funniness did not significantly interact with

social inadequacy or low social confidence. Therefore, it appeared that greater relevance of comedic content enhanced the effects of humor.

However, explicitly instructing individuals to identify with or relate to characters' predicaments has not been shown to enhance the effects of humor. Moran (1996) recruited 31 students and asked them to attempt to identify with cartoons related to conditions such as amputation, phobic fainting, anxiety, and allergy, which were not specifically problem relevant to the student participants. She found that individuals within the student sample who were instructed to identify themselves with cartoon protagonists perceived cartoons as less funny. Moran noted, however, that as a result of limited methodology, it would be premature to conclude that humor that plays into the "victim" role is damaging or nonhumorous. Furthermore, reduced ratings of amusement among participants who were asked to identify with the afflicted protagonists were potentially confounded by induced sympathy rather than empathy. Therefore, it appears that the impact of the integration of humor in clinical and nonclinical contexts may be complicated, and controlled research would benefit from further investigation of humor to establish appropriate parameters of use.

Humor and Clinical Research

Humor has been applied to the treatment of psychiatric populations. Clinical researchers have found variable outcomes that in part may reflect the diverse variables in the application of humor such as reflected in administration, type of humor, familiarity, style/content, and setting, as well as the severity of illness of the patient population under study. Humor has been successfully integrated into individual psychotherapeutic work. For

example, Smith (1973) found that implementing humorous imagery in place of relaxation in a desensitization hierarchy led to the effective treatment of anger in a woman who had difficulty with anger control and did not benefit from standard systematic desensitization. Ventis (1987) later proposed that humor in psychotherapy is most appropriate for those who have conditioned disproportionate negative reactions to specific stimulus conditions, or fear-based and anxiety-related disorders. Humor has been shown to be an effective adjunct to systematic desensitization, and is assumed to intrinsically contain relaxing properties that effectively counter-condition fear (Ventis, Higby, & Murdock, 2001).

Humor has also been utilized well in inpatient settings. For example, Gelkopf, Kreitler, and Sigal (1993) found that when humor was consistently integrated on an inpatient psychiatric unit, it correlated with patient reports of enhanced mood, decreased aggression, and higher reports of staff support. However, no long-term effects on mental health were found among inpatients on the "humor ward."

Ventis and colleagues (2001) discussed that humor in the context of outpatient therapy has generally been difficult to study in a systematic way. When humor was manipulated procedurally, the effects of humor-integrated systematic desensitization on spider phobia were similar to successful fear reduction in standard systematic desensitization on measures of self-efficacy, cognitive-evaluative report, and performance on a behavioral avoidance task (BAT). Although humor reduced fear and fear-related behavior, it did not appear to influence ratings of anxiety. Nonetheless, the humor-integrated treatment was associated with an increase in self-reported use of humor as a coping tool, which was not evidenced in the standard

treatment or control groups. Ventis et al. (2001) stipulated that similar to the process of systematic desensitization, humor might mitigate fear and ambivalence, especially when individuals are repeatedly exposed to the humorous stimuli. Further, they suggested that an individual might be more likely to tolerate or consider an idea or item when it is presented humorously. They also explained that capitalizing on the motivation that humor offers could allow for repeated exposure to content and facilitate exposure to stimuli.

Although clinical research is limited, it has supported the preference for and positive emotional reactivity produced by humor in individuals with depression. Deutsch (2002) utilized a reinforcement paradigm to study responses to humor in depressed individuals. Participants were presented with static, neutral (nature scene), or comedic movie clips. Although depressed individuals responded significantly less than control participants to comedic videos (by a clicking response), both depressed and nondepressed groups preferred and responded to comedic scenes more than neutral or static scenes. Deutsch discussed that despite the plausibility of suggesting that comedic scenes facilitated greater response rates than nature scenes based simply on increased preference or arousal, after participation, depressed participants informally reported that the humorous material was considerably more reinforcing than the neutral and static material. Further, as hypothesized, the comedic condition contributed to higher rates of laughter, and humor was experimentally found to function as a reinforcer (Deutsch, 2002).

Interestingly, clinical populations have been shown to possess strong humor detection and appreciation abilities. For example, Mergl and colleagues (2003) found that individuals

with Obsessive-Compulsive Disorder (OCD) demonstrated comparable performance to healthy matched controls in the assessment of funniness of captionless cartoons. Further, Bozikas et al. (2011) found that individuals with OCD evidenced no deficits in humor recognition or appreciation. A healthy ability to detect and appreciate humor has been similarly demonstrated in individuals with significant social anxiety (Samson, Lackner, Weiss, & Papousek, 2012). Therefore, since clinical populations have demonstrated substantial humor recognition and appreciation abilities, and humor is a popularly accessible avenue for coping with emotionally distressing experiences, the introduction of problem relevant humorous stimuli appears to be a fitting angle for psychotherapeutic work.

Humor Theory and its Treatment Application

Although humor has been discussed anecdotally in the therapeutic literature in relation to its effects on the therapeutic alliance and rapport (e.g. Ortiz, 2000), and as a therapeutic-practitioner style (Ellis, 1987), it has seldom been studied procedurally. In the cognitive-behavioral literature, humor has mostly been discussed as a means to enhance therapist-client rapport and amplify the ability of the therapist to be directive (Ellis, 1987).

Further, the therapeutic strategy of paradoxical intention, an approach that provided the basis for integral behavioral tenets that are incorporated into cognitive-behavioral therapy application today, asked clients to purposely exaggerate and amplify their symptoms in a humorous context (Frankl, 1967). In his description of the paradoxical intention technique and its function in treating fear-based disorders, Viktor Frankl (1967) wrote that paradoxical intention treatment invites:

> not only of a reversal of the patent's attitude toward his phobia inasmuch as the usual avoidance response is replaced by an intentional effort-but also that is carried out in as humorous a setting as possible. This brings about a change of attitude toward the symptom, which enables the patient to place himself at a distance from the symptom, to detach himself from his neurosis. (pp. 146-147)

Further in line with Frankl's notion of exaggerating symptoms in a humorous vein as a means of facilitating reframing, Hurley, Dennett, and Adams (2011) anecdotally adopted ecologist Niko Tinberger's (1951, 1953) concept of the "supernormal stimulus" (which Tinberger used to describe birds' preferences for the allure of very exaggerated physical features) to explain that by exaggerating the funniness and universality in real-life problems and consequences, humor serves as a supernormal stimulus that emphasizes human covert experience and leads to modifying our perceptions in an adaptive way.

Moreover, through a cognitive-behavioral therapeutic lens, exaggeration delivered in a humorous context may allow for a change in the perception of a problem that dilutes threatening material through cognitive distancing (O'Connell, 1976), and can lead to thought restructuring, and increased acceptance (Lefcourt et al., 1995). Lefcourt et al. (1995) described "perspective-taking humor" as a form of emotion regulation intended to create distance between oneself and perceived threat. Further, their proposal evolved into a two-pronged cognitive strategy: one problem focused, which utilized humor to defuse the actual stressful predicament, and one emotion-focused, as a self-protective mechanism to reduce negative emotions by finding humor or infusing humor into negative experiences.

Gestalt psychology has also considered the cognitive benefits of humor during therapy in considering joking a tool for problem solving (Schiller, 1938, as cited in Saper, 1987). Furthermore, in reviewing the mechanisms of humor from the perspective of rational emotive-therapy, Saper (1987) explained that from a cognitive angle, humor directly encourages flexibility in the unyielding client, and behaviorally offers reinforcing and relaxing properties.

In a survey of practitioners who utilized humor in working with depressed adolescents, Epstein (1996) collected responses of therapists registered with the Association for the Advancement of Behavior Therapy (AABT), currently called the Association for Behavioral and Cognitive Therapy (ABCT). Of 320 mailed surveys, 191 therapists (who endorsed an average of 12.04 years since they began licensed practice, and specialized in working with adolescents), returned completed surveys reporting on their beliefs on the use of humor in therapy. Humor was endorsed as most theoretically and ideally appropriate in order to "use the human condition to reframe a problem as universal" (p. 21). However, for the actual implementation of humor, therapists were most likely to report using humor in therapy for the purposes of "exaggerating, minimizing, or relativizing a problem's importance" "pointing out absurdity" and "making fun of oneself" (p. 21). In a similar survey of behavioral therapists by Franzini (2000), the highest endorsed reasons for using humor in therapy were rapport-building, highlighting unrealistic and unhelpful thinking, and facilitating a joint positive therapist-client emotional experience. Further, in clinical practice therapists have acknowledged the utility of integrating references to well-known comedic material in the treatment of psychological problems. For example, in an ABCT webinar lecture on the treatment of obsessive-compulsive disorder, an OCD treatment expert recently described that

when he works with clients who have obsessive preoccupations related to the uncertainty of being homosexual (a common subtype of OCD), he will regularly emphasize a scene from *Seinfeld* involving the character George Costanza having similar obsessive preoccupations after receiving a massage from a masseur (Abramowitz, 2014). This example of utilizing problem relevant humor as a treatment support highlights the potential for using humor-based heuristics in "normalizing" shared human experiences that might be otherwise feared, exaggerated, or critically pathologized by clients.

Therefore, it appears that despite limited research, humor has been of value in cognitive-behavioral therapy as a tool to create cognitive distance, or to facilitate a shift in frame of reference for the client. Interestingly, in response to Epstein's (1996) AABT survey, 62.8% of therapists endorsed using humor in the sessions directly following the intake session. Of note, in Epstein's survey, he found that 68.1% considered humor a feature of the therapist, while only 26.2% considered it an applied therapeutic technique. Therapists who considered it an explicit technique were more likely to endorse its appropriateness and actual use. Further noteworthy, cognitive-behavioral therapists produced higher endorsements of the appropriateness of humor in therapy than their actual use of it in therapy. Epstein (1996) explained that this apparent mismatch between appropriateness and actual use might reflect therapist hesitancy because of the risk of misusing humor, but that it should no less be considered a viable option when used properly.

Finally, the relevance of humor has been linked to the relevance of being a social object (Boeree, 1998). More specifically, according to Boeree (1998), humor encourages

complex learning by allowing us to form new associations. Therefore, the clinical application of relevant humor involves learning to appreciate (and laugh at) the idiosyncrasies of the shared human condition. Furthermore, humor that involves external characters allows us to consider human circumstances lightly, without feeling immediately compelled to shield or protect ourselves. In doing so, the reframing experience that humor stimulates can thereby facilitate a more willing acceptance of the condition or problem (Boeree, 1998).

Although it is evident that humor research and theory provide strong foundational and empirical support for the use of humorous material as a strategy for influencing cognitive, emotional, and behavioral regulation in clients with anxiety-related problems, actual use of applied relevant humor that is relevant to a given problem has not received much attention in the literature. Further, while most research focuses on the cognitive and emotional effects of humor, the effects of humor on behavioral willingness in individuals with anxiety-related disorders warrants further empirical investigation.

Social Anxiety Disorder: Overview and Background

Anxiety disorders originate from a combination of cognitive and behavioral factors. According to the cognitive model of anxiety and fear disorders, distorted cognitions cause and facilitate anxiety, negative affect, and greater perception of vulnerability. These maladaptive thoughts and beliefs are further maintained by distortions in processing information, such as in overestimating the probability of threat and faultily confirming one's distorted thoughts (e.g. Beck, 1976; Beck Emery, & Greenberg, 1985). According to the behavioral model, fears and anxieties are initiated or acquired through classical conditioning, or simple associative-based learning, and sustained through operant conditioning, or reward-based learning, such as negative reinforcement through avoidance behaviors (Mowrer, 1960). Therefore, in order to challenge anxiety and fear responses, cognitive behavioral therapeutic efforts focus on identification and restructuring of maladaptive thoughts and beliefs (Beck et al., 1985), systematic re-exposure to fear or anxiety stimuli in order to facilitate habituation (Wolpe, 1958), reconditioning that counters feared associations (Foa & Kozak, 1986), and efforts aimed at building inhibitory associations to increase fear tolerance (Craske et al., 2008). Further, the "third wave" of cognitive-behavioral therapy focuses on augmenting behavioral principles by building psychological flexibility through emotional contact with fear and anxiety related stimuli to arrive at awareness, and ultimately acceptance, of unwanted internal experience and committed action toward meaningful living (Eifert & Forsyth, 2005; Hayes, Strosahl, & Wilson, 1999).

Epidemiological research indicates that anxiety disorders are reported as being the most common form of mental disorders. Survey data indicates that they affect 28.8% of

people across the lifespan (Kessler et al., 2005). Social anxiety disorder (SAD), referenced interchangeably in the literature as "social phobia" (4th ed.; DSM–IV; American Psychiatric Association, 1994), is defined by a significant fear of being judged negatively or evaluated by others and a pattern of dread or avoidance of social situations (American Psychiatric Association, 2000). Survey data indicates that social anxiety disorder is the third most common mental illness (Kessler et al., 2005), and is the most common anxiety disorder (Schneier, 2006; Stein & Stein, 2008). Specifically, social anxiety disorder has a lifetime prevalence rate of 12.1% (Kessler et al., 2005).

Further, social anxiety is common and is a prominent feature of social civilization, and is even adaptive when it does not approach pathological intensity. Miller and Leary (1992) theorized that we would have difficulty surviving socially without social anxiety, in that it deters us from damaging interpersonal relationships, discourages behaviors that threaten public persona, and functions to repair damage to our social identities. From a psychoevolutionary perspective, the ability to self-protect in response to threat preserves survival and fitness (Bar-Haim, Lamy, Pergamin, Bakermans-Kranenburg, & IJzendoorn, 2007). In the ancestral environment, fear of and vigilance for threatening cues evolved out of critical adaptive function. Since socially cautious behaviors can be situationally adaptive, social cues likely evolved to manage and buffer threat (Öhman, 1986).

Baldwin and Main (2001) described that there is cohesiveness in the shared emotional experience of social anxiety. However, social anxiety becomes clinically relevant or pathological when it leads to distress and social avoidance that ultimately breeds maladaptive

extremes such as social dread and isolation. Moreover, in contrast to other anxiety disorders in which individuals may never come in contact with the feared consequences, individuals with social anxiety do indeed experience instances of the interpersonal negative evaluation and physiological symptoms that they fear and dread (Beck et al., 1985; Bögels, Rijsemus, & de Jong, 2002).

Beck et al. (1985) discussed that unlike other anxiety disorders that involve fears that may be difficult to understand functionally in modern society, social anxiety can be sensibly understood and appreciated. However, since socially inept behaviors would not necessarily be preferential in evolutionary selection processes, the prominence of submissive styles may have biological underpinnings as well (O'hman, 1986). Moreover, social anxiety is common among family members, and may be influenced by genetic and environmental components. Among the environmental contributions are families that emphasize the penalties of negative social evaluation (Fyer, Mannuzza, Chapman Liebowitz, & Klein, 1993) as well as negative social learning experiences (Rapee & Spence, 2004).

Neuroimaging studies corroborate the diagnostic entity of SAD. Functional neuroimaging research has detected hyperactivation of the insula and amygdala, areas implicated in the fear response in individuals with SAD (Cooney, Atlas, Joormann, & Gotlib, 2006; Stein, Goldin, Sareen, Zorrilla, Brown, 2002; Stein & Stein, 2008). Higher severity of social anxiety has been shown to correlate with heightened amygdalar response (Evans et al., 2008, Phan, Fitzgerald, Nathan, Tancer, 2006). However, Ziv, Goldin, Jazaieri, Hahn, and Gross (2013) found that when individuals with SAD were exposed to socially threatening

faces and negative social feedback, brain activity in the insula and amygdala was actually comparable in healthy participants and participants with SAD. However, since individuals with SAD were more likely to report higher endorsements of negative emotion in response to the threat stimuli (exposure to faces, beliefs, and criticism), Ziv et al. (2013) suggested that cognitive-behavioral (rather than neural-biological) processes, such as interpretation biases and behavioral avoidance, are more likely implicated in higher reports of negative affect, and in the onset and maintenance of SAD.

Social anxiety is commonly identified in the nonclinical population (Hofmann & Roth, 1996). Clark and Beck (2010) described that the severity of social anxiety falls along a continuum, with mild or moderate social anxiety involving less intense fear or fewer feared contexts, and generalized social anxiety encapsulating fear of a more comprehensive array of interaction and performance situations. Antony and Swinson (2008) described that interaction fears might include maintaining eye contact, attending a social event, initiating a conversation, and asserting an opinion. Performance fears might include speaking publicly, making a speech or articulation error in front of others, or simply walking in front of a group of others. Further, individuals with social anxiety have been shown to engage in higher levels of avoiding or hiding anxious thoughts and experiences (Herbert & Cardaciotto, 2005; Kashdan, Barrios, Forsyth, & Steger, 2006). Individuals with generalized SAD are more thoroughly impaired in various life domains, report fewer romantic relationships, fewer friends, and lower perceived support (Davidson, Hughes, George, & Blazer, 1993; Mendlowicz & Stein, 2000). Individuals with specific "performance only" type social anxiety, however, fear rejection as a result of poor performance or obvious signs of anxiety.

Performance-type social anxiety has been compared to specific phobia, since individuals anticipate exposure to the feared consequences of rejection (Huppert & Foa, 2004). Prior to the DSM-V (American Psychiatric Association, 2013), SAD was conceptualized as a phobia ("social phobia") since fear is triggered in the vicinity of a perceived threat, which in the context of social anxiety is inspection and judgment by others (Hofmann & Barlow, 2002).

Individuals with SAD are especially cognizant of anxiety symptoms that manifest physiologically (Johannsson & Ost, 1982), and are more likely to believe that their anxiety is on display (McEwan & Devins, 1983). Physical symptoms of social anxiety are similar to symptoms of panic disorder (Beidel & Turner, 2007), and individuals with SAD experience heightened physical symptoms of anxiety when in feared social situations compared to individuals without significant social anxiety (Turner, Beidel, & Larkin, 1986b). Further, many individuals with SAD fear having panic attacks (Hofmann, Ehlers, & Roth, 1995). Hofmann (2005) described fear of displaying obvious signs of anxiety and anticipated loss of control of emotional response as central threats in social anxiety. More specifically, individuals with SAD fear exhibiting physiological symptoms of hyperarousal (such as sweating, shaking, heart acceleration, nausea, stuttering, and strained attention), which contributes to motivation to escape or avoid social situations (Stein & Stein, 2008).

Comorbidity of SAD with other anxiety disorders is common (Kessler, Berglund, Demler, Merikangas, & Walters, 2005). Robust comorbidity is associated with more severe impairments in global functioning (Wittchen, Stein, & Kessler, 1999). When examining comorbid diagnoses of primary SAD, 56.9% of individuals with SAD reported a second

anxiety disorder, and 37.2% reported co-occurring major depression. Of the anxiety disorders, SAD was reported to have the highest comorbid diagnosis of major depression in the National Comorbidity Survey, with the onset of depression estimated as approximately twelve years after the presentation of social anxiety (Kessler, Stang, Wittchen, Stein, & Walters, 1999). Rapee, Sanderson, and Barlow (1988) found that of the anxiety disorders, Generalized Anxiety Disorder (GAD) had the highest rate of comorbidity with SAD. Further, approximately 50% of people with SAD reported co-morbid psychiatric and drug and alcohol use-related problems (Sanderson, DiNardo, Rapee, & Barlow, 1990). Highly socially anxious people also report higher rates of unemployment (Schneier, 2006) and suicide risk (Baldwin & Buis, 2004).

Cognitive Models of Social Anxiety

According to Beck and colleagues' (1985) cognitive model of anxiety and fear, biases in the inspection and processing of threat are principal in the origin and maintenance of anxiety disorders. Specifically, Bar-Haim and colleagues (2007) identified that most biases implicated in anxiety disorders involve judgment, memory, interpretation, and attention. Maladaptive cognitive appraisal is considered a primary etiological factor underlying SAD (Clark & Beck, 2010). Beck et al. (1985) provided the foundation for the cognitive model of social anxiety. They proposed that maladaptive thoughts are generated during cognitive appraisal that bias processing and attention toward social-threat related stimuli and reinforce biased assumptions.

There are two major cognitive-behavioral models of SAD, outlined by Clark and

Wells (1995), and Rapee and Heimberg (1997). Clark and Wells (1995) highlighted the role of self-focused attention, or internal process, in the maintenance of SAD. Rapee and Heimberg (1997), however, pointed out the dual process of self-focused monitoring and environment-focused monitoring, and maintained that individuals with social anxiety calibrate internal self-monitoring in response to external cues, such as perceived negative feedback. Whereas Clark and Wells (1995) proposed a closed-circuit model that addressed the primary role of self-monitoring and cognitive scripts in the maintenance of social anxiety, Rapee and Heimberg (1997) proposed an open-circuit one, in which environmental information such as perceived audience feedback significantly moderates appraisal.

Further, Clark and Wells have stressed the primary significance of self-monitoring in feeding negative core beliefs regarding self-expectations and perceived expectations of others (Clark, 2001; Clark & Wells, 1995). Core beliefs include beliefs about oneself that are generally global and negative ("e.g. "I'm not a likeable person"), beliefs about others (e.g. "People don't like people who are indecisive"), beliefs about judgment (e.g. "When people think I'm stupid, it is awful)," beliefs about performance expectations (e.g. "If I fumble on my words, it shows how flawed I am"), and beliefs about the consequences of anxiety (e.g. "When I look anxious, people can tell I'm incompetent"). Individuals with SAD amplify the consequences of these thoughts (Clark & Beck, 2010).

Increased self-monitoring also impairs performance in social situations since attentional resources are strained, interfering with the potential for general or task-relevant feedback that may disconfirm negative assumptions (Clark & Beck, 2010). Clark and Beck

(2010) also described the role of safety behaviors, behaviors intended to preclude or reduce feared evaluation, in the maintenance of social anxiety. Safety behaviors are damaging in that positive outcomes that may disconfirm negative social-interpersonal assumptions are attributed to safety behaviors (e.g. excessive apologizing) rather than being accepted as counterevidence to threat (Taylor & Alden, 2010; Wells et al., 1995). Individuals with SAD persist at safety behaviors despite knowledge of potentially adverse consequences because of their negatively reinforcing properties (Voncken, Alden, & Bögels, 2006).

Clark and Beck (2010) further expounded on the cognitive model of SAD (Clark & Wells 1995). They described that social anxiety is typified by an a) anticipatory phase, b) a situational exposure phase, and c) a post-event processing phase. The anticipatory period includes some knowledge of a future social encounter or the reminder of a past encounter linked to a future encounter. During this phase, which often involves self-protective efforts to avoid discomfort and social initiative, individuals anticipate and fear experiences that will involve interaction or performance. The laborious cognitive processing that characterizes the anticipatory phase includes worry, biased appraisal, and emotional vulnerability, which fuel anxiety and increase the desire to avoid or escape (Clark & Beck, 2010). When avoidance is not possible, however, individuals are forced to resort to situational exposure to dreaded social interaction accompanied by high levels of anxiety.

In the situational exposure phase, individuals with SAD experience intense anxiety in confronting the social experience. During this phase, a negative schema or set of beliefs (e.g. related to social inadequacy) is stimulated, which automatically triggers self-alertness and

paradoxical safety, inhibitory, and avoidance behaviors (Beck et al., 1985; Clark & Wells, 1995; Wells et al., 1995). During processing of the social event, preconceived beliefs related to perceived social ineptitude such as past failures, forecasts of future failure, biased memories that confirm failure, feelings of dread, and familiar physical symptoms of anxiety might appear. Self-defeating thoughts then overshadow an individual's sense of control and confirm social threats.

A secondary reappraisal process then follows contact with the feared social stimuli (Clark & Beck, 2010). During the second phase of appraisal, the individual experiences high anxiety, physical features of anxiety, compromised social contact, and the wish to escape. Individuals become wholly hypersensitized to their own cognitive, emotional, physical, and behavioral feedback, and are likely to overestimate the feedback that is available to others (Clark & Wells, 1995). Individuals then filter out positive feedback or information that would challenge their negative thoughts and beliefs. In the final phase of the social anxiety process, post-event processing, or as Clark (2001) termed, "postmortem" (p. 411) analysis, performance or social interactions are recalled, mentally reviewed, and evaluated in a self-defeating manner, thereby reinforcing biased core beliefs and perpetuating the damaging cycle (Brozovich & Heimberg, 2008).

In distinction from Clark and Wells' model that highlights predominant self-monitoring, Rapee and Heimberg (1997) accentuated the feature of external feedback. They explained that individuals with social anxiety consistently process and integrate external information with internal expectations for oneself, thereby maintaining their self-

representations. Further, Rapee and Heimberg highlighted the notion of an "audience" (real or imagined) as particularly relevant and threatening. Rapee and Heimberg's model is similar to Clark and Wells' (1995) but incorporates an external bias towards perceptions or expectations of others, which assumes that others are actively and incisively judgmental. Further, Rapee and Heimberg suggested that highly anxious individuals possess a heightened sensitivity to negative social cues, which they placed in the evolutionary context of being wary of threats to resources (Trower & Gilbert, 1989).

Rapee and Heimberg described the joint process of hypersensitivity to external cues and internal confirmation (through cognitions and physiological responses) as cyclical and fixed (Schultz & Heimberg, 2008). In addition to positing that excessive self-focus aggravates anxiety, which is consistent with Clark and Wells' model, Rapee and Heimberg added that the process is reciprocal and continuous, such that the overemphasis on the self propels increased hypersensitivity to external cues.

Further, Shlenker and Leary (1982) offered the self-presentational model of social anxiety, which emphasized the role of motivation and expectations in social anxiety. They proposed that social anxiety is a function of one's motivation to make a good impression coupled with a subjective estimate of one's ability to accomplish that task, such that eager desire to perform well is overshadowed by doubtful estimation of one's abilities. Further, the lack of clear feedback in social situations serves to maintain social anxiety (Huppert & Foa, 2004; Rapee & Heimberg, 1997).

Processing and Biases in Social Anxiety

Several processing biases have been identified among individuals with social anxiety. For example, two common cognitive distortions that characterize maladaptive processing include overestimation of likelihood of threat (Foa, Franklin, & Kozak, 2001), and overstated negative consequences (Foa & Kozak 1986, 1993). More specifically, social anxiety is characterized by inflated estimation of the likelihood of social evaluation and exaggerated ramifications of poor social performance. In addition to direct processing bias, Bögels and Mansell (2004) described the vigilant-avoidant reaction patterns of individuals with SAD, who often tend to immediately locate and then attempt to direct attention away from social cues.

Research has demonstrated weaker social cognition in individuals with SAD, which reflects biases in appraisals, information processing, and interpersonal inferences (Hirsch & Clark, 2004; Stopa & Clark, 2000). Individuals with high social anxiety have also been shown to demonstrate an attentional partiality to negative feedback (Alden & Taylor, 2004; Amin, Foa, & Coles, 1998; Bögels & Mansell, 2004; Taylor, Bomyea, & Amir, 2010). Moreover, after controlling for state anxiety and depression, social anxiety was found to negatively correlate with ability to regulate attention (Moriya & Tanno, 2008).

Interpretation bias is considered a causal factor of social anxiety (Morrison & Heimberg, 2013). It refers to the pattern of assessing neutral or ambiguous stimuli as negative. In addition to lacking attention bias for detecting positive stimuli, individuals with social anxiety lack automatic positive bias, and are more likely to forget positive information when interpreting stimuli, when compared to nonanxious individuals (Hirsch & Mathews, 2000).

Moreover, individuals with social anxiety have been shown to interpret positive social information as threatening (Alden, Taylor, Mellings, & Laposa, 2008), and to interpret positive events more negatively than anxious counterparts (such as individuals with OCD or panic disorder) (Laposa, Cassin, & Rector, 2010). Individuals with SAD were also found to be faster at detecting anger and fear when situations were loaded as moderately threatening, suggesting more immediate perceptual associations (Mullins & Duke, 2004).

In addition to attention bias towards negative stimuli or threat (Alden et al., 2008), a processing bias toward positive social feedback may also be activated, resulting in positive external cues receiving less attention (Laposa et al., 2010; Perowne & Mansell, 2002). Furthermore, Chen, Clarke, MacLeod, and Guastella (2012) found that individuals with SAD demonstrated a bias reflected in shorter attention fixation in response to all emotional stimuli and quicker disengagement from positive stimuli, as evidenced by measuring eye movement. Weeks, Heimberg, and Rodebaugh (2008) found that individuals with SAD also demonstrated a fear of positive evaluation (FPE) and tended to minimize positive experiences. According to Wang, Hsu, Chiu, and Liang (2012), receiving positive feedback can be disarming to individuals with SAD who see themselves as inadequate. Positive feedback challenges self-image, which in turn, leads to self-imposed pressure related to anticipated higher demands. Further, Wallace and Alden (1995, 1997) found that individuals high in social anxiety reported higher anxiety after receiving positive feedback about social interaction because of future expectations for themselves and fears of performing poorly relative to their success. In addition to social anxiety correlating with bias toward positive stimuli, it may also be associated with a more global deficit in general positive affect related to excessive emotional

suppression (Kashdan & Collins, 2010; Watson & Naragon-Gainey, 2010). Kashdan and Steger (2006) found that highly socially anxious individuals reported fewer positive events daily and diminished levels of positive affect compared to nonanxious individuals. Nonanxious and socially anxious individuals both reported lower positive affect on days when social anxiety was subjectively high.

In addition to attention and interpretation biases, interpersonal bias has also been identified among socially anxious individuals (Purdon, Antony, Monteiro, & Swinson, 2001). Purdon et al. (2001) examined social anxiety in 81 students and the effects of social anxiety on one's appraisal of others with anxiety. They found that those who reported high levels of social anxiety were more likely to rate other anxious individuals as less attractive, weaker in leadership potential, and globally weaker characters.

However, reconditioning has been shown to be effective with the socially anxious population. For example, Amir, Weber, Beard, Bomyea, and Taylor (2008) found that after a single session of attention modification training that shaped attention to neutral (versus disgust) faces, individuals with social anxiety produced better performance on public speaking tasks than individuals in an attention control condition, as rated by blind judges. Further, Clerkin and Teachman (2010) found that after undergoing conditioning trials aimed at bolstering positive social-evaluative image by having participants click on positive faces after viewing pictures of themselves pretending to deliver a speech, socially anxious individuals spoke for longer durations during a speech task and were more likely to complete the task. These findings suggest the corrective potential of learning new, positive associations

in individuals with social anxiety. Interestingly, participants who underwent the positive conditioning trials and spent more time on the speech task did not report less anxiety, suggesting that building positive associations might increase commitment to behavioral engagement in therapeutic tasks despite anxiety.

Social Anxiety and Emotion Regulation

Individuals with social anxiety are presumed to have a wider deficit in processing emotion as a result of emotional suppression that limits the experience of positive emotion (Kashdan & Collins, 2010; Watson & Naragon-Gainey, 2010). In a meta-analysis, Kashdan (2007) found that after controlling for depression, high socially anxious individuals revealed a stable negative relationship with level of positive emotion, as reflected in scores on affect, novelty seeking, and curiosity rating scales.

Farmer and Kashdan (2012) discussed two primary processes of emotion regulation: cognitive reappraisal and emotion suppression. Emotion suppression is a process in which display of emotion is subdued and does not match one's internal experience. Although research on emotion regulation within social anxiety is limited, Farmer and Kashdan (2012) found that based on self-report, individuals with high social anxiety more frequently suppressed positive emotion, expressed a decreased intensity of positive emotion, and reported significantly fewer positive experiences occurring the day following motivated emotional suppression.

Individuals with social anxiety suppress negative emotion (Erwin, Heimberg, Schneier, & Liebowitz, 2003) as well as positive emotion (Turk, Heimberg, Luterek, Mennin,

& Fresco, 2005). Individuals with high social anxiety described using more positive emotion suppression than healthy individuals (Turk et al., 2005). In individuals who reported high trait social anxiety, high rates of emotion suppression correlated with report of fewer positive events per day (Kashdan & Steger, 2006). Further, Kashdan (2007) found that individuals who reported higher emotional suppression (as measured by daily monitoring) reported fewer positive interactions or experiences than those who reported less suppression. Moreover, Spokas, Luterek, and Heimberg (2009) found that individuals with social anxiety endorsed feeling that expressing one's emotions suggests weakness.

Individuals with social anxiety were also found to report lower rates of positive emotions in both social and nonsocial settings (Kashdan & Collins, 2010). Undergraduates with social anxiety reported increased suppression of positive emotion when compared to healthy control participants and individuals with GAD (Turk et al. 2005). The relevance of positive emotion suppression in individuals with high social anxiety is important because the ability to experience and exhibit positive emotion is a portal for developing opportunities for positive experiences.

Social Anxiety and Cognitive Appraisal

Cognitive reappraisal involves shifting one's frame of reference or reevaluating emotionally triggering information more flexibly. Negative cognitions, or self-defeating thoughts, are primary in social anxiety (Bruch, Heimberg, & Hope, 1991) and individuals with high social anxiety report a disproportionate amount of negative thoughts compared to positive thoughts (Cacioppo, Glass, & Merluzzi, 1979; Heimberg, Bruch, Hope, & Dombeck,

1990). Relative to nonanxious controls, individuals with high social anxiety report more negative cognitions (Dodge, Hope, Heimberg, & Becker, 1988). Huppert, Pasupuleti, Foa, & Mathews (2007) investigated whether highly socially anxious individuals were more likely to generate varied or flexible interpretations (such as positive, negative, or neutral responses), and whether they were more likely to choose one as the best or most likely interpretation of an ambiguous social predicament. They found that individuals with social anxiety of clinical severity evidenced a negative bias in generating and selecting responses, and an absence of positive bias, or lack of resistance toward forgetting positive stimuli. They concluded that negatively biased interpretations are meaningfully related to social anxiety, and that a deficit in producing positively biased interpretations is associated with social anxiety.

Therapeutic efforts work at helping individuals with social anxiety recast appraisals. For example, efforts might focus on helping individuals appreciate physical reactivity as an adaptive signal that can facilitate successful social functioning instead of it being interpreted as a sign of poor social performance or social inadequacy (Lindquist & Barrett, 2008). Moreover, Jamieson, Nock, and Mendes (2012b) discussed that providing socially anxious individuals with psychoeducation about the adaptive and normal function of arousal can help them maximize rather than damage performance. Further, it has become evident in neurobiological research that learning to reappraise negative self-beliefs provides an important and effective avenue for decreasing ratings of negative emotion, influencing important functional neural pathways, and enhancing regulatory neural activity in individuals with SAD (Goldin, Ziv, Jazaieri, Hahn, Heimberg, and Gross, 2013).

Treatment of Social Anxiety

Social anxiety can be treated effectively using cognitive-behavioral therapy (CBT), which has currently received the most empirical support for the treatment of SAD (Herbert & Cardaciotto, 2005; Rodebaugh, Holaway, & Heimberg, 2004) and is considered its most effectively applied treatment (Beck & Dozois, 2011). Cognitive-behavioral therapies involve exposure to feared stimuli, during which individuals engage in behavioral exposure experiments and imaginably or actually (in vivo) contact and endure feared stimuli or events, thereby shifting affective and behavioral associations and leading to reduction of fear as a result of experiential counterevidence and desensitization to fear (Foa & Kozak, 1986). CBT for SAD also involves cognitive restructuring, which works to identify and challenge negative thoughts (Beck et al., 1985), and improve emotion regulation (Campbell-Sills & Barlow, 2007). Cognitive restructuring helps individuals learn to systematically reevaluate and correct unrealistic or negatively biased automatic thoughts related to triggering events (Clark & Wells, 1995; Heimberg, Brozovich, & Rapee, 2010). Further, since poor emotion regulation is a significant component of SAD (Hermann, Ofer, & Flor, 2004; Hofmann, 2004) behaviorally based treatments for SAD have been calibrated to increase flexibility in willingness to notice and work toward acceptance of cognitive and emotional reactivity, such as reflected in Acceptance and Commitment Therapy (ACT; Hayes et al., 1999; Herbert & Cardaciotto, 2005).

Therefore, the goal of therapeutic efforts targeted in the treatment of social anxiety is to direct reevaluation of negatively biased thoughts and encourage social initiative and engagement despite anxiety. Although evidence of diminished positive affect, biased

processing, strained cognitive and emotional regulation skills, and behavioral avoidance have been substantiated in the socially anxious population, the use of humor as an intervention to enhance positive affect, cognitive reappraisal, affect regulation, and social-behavioral engagement among individuals with significant social anxiety has not yet been explored in the research. Further, the use of humor as a facilitative augmentation intervention to build new associations that might encourage tolerance and acceptance of social anxiety symptoms has not yet been empirically explored.

Humor and Social Anxiety

Although research on humor and social anxiety is limited, Samson and colleagues (2012) found that, contrary to their hypotheses, individuals with high social anxiety were just as competent at understanding and appreciating humor as healthy controls. Of note, individuals with high social anxiety endorsed less appreciation of theory of mind (TOM) humor that required individuals to be able to infer the interpersonal intentions of cartoon characters, as reflected in lower funniness ratings. However, individuals with social anxiety exhibited a consistent ability to detect and appreciate humorous cartoons, including humor that depicted social scenes. It appears that individuals with social anxiety have intact humor processing skills but perhaps prefer that humorous content be perceptible and well defined. Although there is a lot of exciting theory to support the potential benefits of humor in therapeutic efforts, there is little empirical research in the domain of social anxiety. In a recent single study on humor styles in individuals with social anxiety, Tucker and colleagues (2013) found that self-enhancing and affiliative humor styles were negatively related to symptoms of

social anxiety and depression, suggesting that humor styles are beneficial and protective to socially anxious individuals. Moreover, higher reports of affiliative humor correlated with a weaker relationship between social anxiety and symptoms of depression, suggesting that affiliative humor, which often relates to adaptive interpersonal interaction, produces buffering effects on mood dysregulation in this population. Of note, Tucker et al. (2013) found that possessing an aggressive sense of humor was not a significant negative moderator of social anxiety, and may be considered an apt coping humor style in the socially anxious population as well. The researchers stated the importance of emphasizing the role of adapting humor toward the processes of psychotherapy.

Statement of the Problem and Rationale

Exposure to humor has been shown to have many effective properties such as influencing cognitive, affective, and behavioral change. It has been shown to increase coping cognitions (e.g. Kuiper et al., 1993; Kuiper et al., 1995), and moderate positive (e.g. Samson & Gross, 2012) and negative emotion (e.g. Kuiper & Martin, 1998a, Newman & Stone, 1996), and is significantly associated with facilitating emotional relief (Abel, 2002). Moreover, it has been shown to enhance task motivation (e.g. Kuiper et al., 1995), and contribute to increased behavioral engagement in confronting fear (Ventis et al., 2001). However, the therapeutic application of problem relevant humor has received little attention in the cognitive-behavioral therapy literature.

Why use humor with individuals with social anxiety?

Although CBT is considered an effective treatment for social anxiety, complete

remission rates are modest (Stein & Stein, 2008) and sometimes only result in mild improvement in symptoms (Hofmann & Bögels, 2006). Further, many socially anxious individuals do not pursue treatment, or choose not to engage in treatment after initial inquiry into treatment, such as highlighted in the curtailed processes of scheduling an intake interview, attending the interview, and beginning treatment after receiving confirmation of a diagnosis of social anxiety (Coles, Jindra, & Heimberg, 2004). Individuals with social anxiety are often discouraged by factors such as fear of evaluation by others and feel embarrassed to share their anxieties with family members, friends, and clinicians (Olfson et al., 2000). Poor homework compliance (Edelman & Chambless, 1995), as well as comorbidity with other psychiatric conditions (Turner, Beidel, Wolff, Spaulding, & Jacob, 1996) predicts poorer outcome rates. Recently, Sung et al. (2012) found that individuals with social anxiety reported that they are less likely to exercise cognitive and behavioral strategies, and hold less conviction in the effectiveness of these strategies. Further, Farmer and Kashdan (2012) found that among individuals with social anxiety, self-generated cognitive reappraisal was not an effective emotion regulation tool.

In the present study it was proposed that it is likely that humor related to social anxiety may serve to "normalize" social anxiety-related concerns and facilitate more accepting reappraisals such as reflected in higher reported acceptance of symptoms, and greater willingness to engage in tasks that might otherwise seem threatening. Further, although it has been shown that individuals with social anxiety are less inclined to seek out positive experiences (e.g. Moriya & Tanno, 2008) and may attend less to positive stimuli (e.g. Perowne & Mansell, 2002; Turk et al., 2005), individuals with social anxiety have been found

to be just as capable at recognizing and appreciating the positive experience of humor as individuals without social anxiety (Samson et al., 2012). Further, research has revealed that feelings of social inadequacy or low social confidence did not impede enjoyment in responses to humorous stimuli (Cetola, 1988). Therefore, since individuals with significant social anxiety appear to demonstrate a healthy appreciation of humor, and humorous material has been shown to be more memorable than neutral material (Carlson, 2011; Schmidt, 1994), methodically introducing humor into psychoeducational treatment for social anxiety might be an opportune way to enhance the impact of therapeutic material. In this sense, humor might provide a favorable conduit to capitalize on memorable positive emotional experience in individuals with social anxiety. Further, relatable humor is considered particularly gratifying, and content related to personally relevant experience has been found to increase its perception and enjoyment (Cetola, 1988).

It remains unclear whether and to what extent humor can be used to facilitate cognitive reappraisal or greater symptom acceptance. The present study is designed to test whether problem relevant humor, or more specifically, humor related to experiences and symptoms of social anxiety that are personally relevant to socially anxious individuals, will ultimately influence their appraisals, emotional states, and behaviors, with the intention of "normalizing" social anxiety. In a study that utilized acceptance-based techniques to social anxiety (derived from ACT), levels of acceptance, rather than awareness, had a stronger negative relationship to ratings of social anxiety (Kocovski & Battista, 2006). Further, lower ratings of acceptance predicted lower quality of life and higher rates of social avoidance and distress. Therefore, acceptance of social anxiety might be advantageous for symptom

remission and mitigating distress. Although standard therapeutic psychoeducation raises awareness of the origin and maintenance of social anxiety, the present study sought to investigate whether humor could help facilitate acceptance of social anxiety over and above awareness, and ultimately lead to increased behavioral activation.

Humor within the context of therapy is complicated to study since it is often unplanned and unsystematic. However, it is possible to study humor procedurally using experimental parameters by introducing prearranged humorous materials (e.g. Ventis, Higbee & Murdock, 2001). To my knowledge, however, there is no published research investigating the effects of utilizing topic-related humor procedurally tailored to specific problem conditions, or utilizing specific humor to examine its potential for treatment application. Further, the few studies that have examined the application of humor to analogue or clinical populations have utilized cartoon humor (e.g. Samson et al., 2012) or general comedy routines (e.g. Deutsch, 2002), but were not arranged to directly "target" or relate to a specific problem or condition. However, since relevant humor, or humorous material that is directly relatable by topic, has been shown to correlate with significantly higher funniness ratings (e.g. Cetola, 1988; Kellaris & Cline, 2007), it might be an attractive tool for intervention.

This study aimed to simulate a CBT psychoeducational session that would typically take place after an initial intake interview, accompanied by the augmentation of humor. Further, this study was designed to investigate whether relevant humor might ultimately provide a helpful enhancement strategy in treatment in order to expand flexibility in reappraisal and acceptance of symptoms, as well as facilitate greater social-behavioral

engagement. It was predicted that social anxiety-related humor would influence cognitive and emotional changes, reflected in self-report ratings, as well as immediate and subsequent behaviors, as reflected in willingness to initially select and later engage in behavioral exposure tasks.

In the current study, a nonclinical sample of individuals with self-reported social anxiety served as participants. The specific aims of the current study were as follows: (1) to determine the effects of social anxiety-related humor on anxiety (2) to determine whether humor processing facilitates more accepting appraisals and (3) to measure effects of humor on willingness to engage in behavioral tasks. In the current study, participants were administered a CBT module for social anxiety, composed of psychoeducational literature. In the experimental condition, this module was supplemented with social anxiety related-humorous video clips. In the control group, this module was supplemented with nonhumorous psychoeducational video clips.

It was hypothesized that introducing humor relevant to social anxiety would be associated with lower levels of anxiety. It was also hypothesized that humor would facilitate increased social anxiety symptom acceptance and increased self-acceptance. Further, humor was expected to influence increases in initial engagement and later committed engagement in social-media activities related to disclosure about social anxiety.

Hypotheses

Based upon the literature reviewed, the hypotheses were as follows:

1. An effect for anxiety was expected in the treatment condition. Participants in the humor condition were expected to endorse lower levels of anxiety than participants in the nonhumor condition, as reflected in lower post-intervention ratings on the State-Trait Anxiety Inventory (State-form; STAI-S).
2. An effect for symptom acceptance was expected in the treatment condition. Participants in the humor group were expected to endorse greater acceptance of symptoms and thoughts related to social anxiety, as measured by higher post-intervention ratings on the Social Anxiety- Acceptance and Action Questionnaire (SA-AAQ), and lower-post intervention ratings on the Scale of Social Perfectionism and the Brief Fear of Negative Evaluation Scale. Increased general self-acceptance was also expected in the humor group, as reflected in higher post-intervention self-esteem ratings on the State Self-Esteem Scale (SSES).
3. An effect for behavioral engagement was expected in the treatment condition. Participants in the humor group were expected to demonstrate greater initial engagement, by selecting a greater number of behavioral engagement tasks, and greater committed engagement, by completing a greater number of behavioral engagement tasks, as measured at post-study follow-up.

CHAPTER II.

Method

Participants

Sixty-nine participants were recruited from the Hofstra University undergraduate population. Data from 65 participants ($N = 65$) were analyzed for interpretation. Data from four participants were excluded from analyses. Data from three participants were excluded because they provided incomplete responses to question prompts during their participation. Further, data from one participant was excluded from analyses because the participant was a graduate student and 31 years of age, whereas all other participants were undergraduates between ages 17 and 23. Table 1 contains the demographic distributions of the participants.

Data from 65 participants were available for analysis (see Table 1). Of the 65 participants, 47 (72.3%) were female. The 65 participants had a mean age of 19.0 (SD=1.00). The majority (56.9%) identified themselves as White or Caucasian.

Students registered for the study through Sona Systems™ , an online recruiting tool, from February 2014 through May 2014. To qualify for the study, participants had to score above the cutoff score of 19 on the Social Phobia Inventory, which has been used to reliably differentiate individuals who report significant social anxiety from controls (Connor, Davidson, Churchill, Sherwood, Foa, & Wesler, 2000; Appendix A). Further, in order to be eligible for participation, participants confirmed that they had an active Facebook account.

Table 1

Participant Characteristics in Treatment and Control Groups

Characteristic	Treatment (n = 31)	Control (n = 34)
Gender		
Male	9	9
Female	22	25
Age		
17	0	2
18	16	16
19	11	10
20	3	4
21	1	1
23	0	1
Ethnicity		
American Indian	0	1
Asian	5	6
Black/ African American	2	3
Hispanic/ Latino/ Latina	4	2
White/ Caucasian	17	20
Other	3	2
School year		
Freshman	23	25
Sophomore	6	6
Junior	2	1
Senior	0	2

There were no significant differences in the baseline social anxiety mean scores on the SPIN (Social Phobia Inventory; Connor et al., 2000) (see Table 2). The mean SPIN score for the humor group was 33.97 (SD = 11.70), and the mean SPIN score for the nonhumor group was 33.68 (SD = 11.34). The difference between the SPIN scores of the two conditions was

not significant, $t(63) = 0.10$, $p = .92$, 95% confidence interval = [-5.42, 6.00], with a small effect size, Cohen's $d = 0.03$, indicating that the two groups did not differ significantly in anxiety levels at baseline.

Table 2

Means and Standard Deviations for Baseline Social Anxiety Scores on the SPIN

Group	*n*	*M* (*SD*)	Range
Humor	31	33.97 (11.70)	19 - 59
Nonhumor	34	33.70 (11.51)	19 - 63
Total	65	33.84(11.61)	19 - 63

Note. SPIN = Social Phobia Inventory. Scores had a possible range of 0-68. Scores from 19-30 imply mild social anxiety; scores from 31-40 imply moderate social anxiety; scores from 41-50 imply high social anxiety, and scores 51 or greater imply severe social anxiety.

After the participant met inclusion criteria on the SPIN at mass testing or through email confirmation, he or she was invited to participate in the study by receiving an email that explained that they qualified for participation in the "Attitudes, Multimedia, and Information" study. Subsequently, the principal investigator contacted the pre-qualified participants through email, and interested participants responded. Participants then registered for the study at their convenience. An additional 10 participants who did not participate in mass undergraduate pre-screening viewed the study description on the Sona Systems™ website and contacted writer through email communication to ask whether they would be eligible to participate in the study for class credits. They were asked to complete and email the results of the SPIN

questionnaire and to state whether they had a Facebook account. If they met inclusion criteria by scoring a 19 or above on the SPIN, and confirmed that they had an active Facebook account, they were provided with the study registration code and permitted to sign-up for participation. Participants viewed the study description as: "This study will allow us to better understand the use of multimedia as an educational, informative tool. As a participant, you will be asked to attend one 60-minute session in which you will read materials and watch related YouTube video clips. You will be asked to complete questionnaires that assess your thoughts and feelings." Participants were randomly assigned by a random numbers generator to one of two groups: psychoeducation with no humor, or psychoeducation with social anxiety relevant humor.

Materials

The study was performed in 3 designated rooms in Hofstra University's Hauser Hall. All multimedia materials were viewed on a 13-inch Macbook Pro laptop. Psychoeducational material was presented in print, and video clips were accessed through the Internet. All video clips were available to the experimenter and to two trained female graduate research assistants by logging into a linked Google-YouTube account and accessing two video playlists customized for the humor and nonhumor conditions. Video clips were customized through a feature on YouTube that allowed the clips to be shortened in order to approximately match cumulative length of video clips in both conditions.

Prior to the study, multimedia materials were piloted online through a survey posted on the experimenter's Facebook page for a 1-week duration during August 2013. Materials

were posted in a web-based format that utilized a survey template from www.freeonlinesurveys.com. Individuals who felt that they identified with social anxiety were asked to watch video clips, read materials, and provide funniness ratings on a 5-point Likert scale that included 0 ("not funny"), 1 ("slightly funny"), 2 ("somewhat funny"), 3 ("moderately funny"), and 4 ("very funny").

Results of the pre-screening survey were based on data from 36 respondents. All respondents were between the ages of 17-30. Of the respondents, 44.4% were male, and 55.6% were female. In order to address the complication of varying individual humor styles, only materials (videos) that received a funniness rating of 1 ("slightly funny") or higher by at least 90% of respondents were included as humor materials in the humor condition (see Appendix D). Psychoeducational video clips on social anxiety were rated as "not funny" by over 90% of respondents and were utilized as neutral materials in the nonhumor condition (Appendix D).

In-print Psychoeducational Materials. Cognitive-behavioral psychoeducational literature was taken from "*The Shyness & Social Anxiety Workbook*" (Antony & Swinson, 2008). Psychoeducational material included excerpted material from Part 1 of the book, "Understanding Your Social Anxiety," including chapters "Shyness and Social Anxiety," "Why Do We Have These Fears?" and "Getting to Know Your Social Anxiety," and Part 2 of the book, "How to Overcome Social Anxiety and Enjoy Your Life," including excerpted material from chapters "Changing Your Anxious Thoughts and Expectations," "Confronting Your Fears Through Exposure," and "Exposure to Social Situations." In-print

psychoeducational materials and self-report questionnaires (presented in module form) were identical in each condition (see Appendix P).

Humorous Multimedia Materials. Humorous materials were related to social anxiety in a thematic or illustrating vein, depicted symptoms of social anxiety, or challenged expectations and exaggerated symptoms or consequences of social anxiety. In order to cater to different potential humor styles, video clips varied in humor style, and offered affiliative as well as aggressive humorous content, since research has found that aggressive humor does not negatively moderate social anxiety (Tucker et al., 2013).

Clips included the following (Appendix D):

Video clip A. The stand-up comedy routine by Louis C.K. "Hating on People and Waiting in Lines" (2:37) (Icyghost666, 2012) depicts comedian Louis C.K. describing the social threat involved in standing on line at the post office, where individuals are persistently engaged in censoriously judging and evaluating other individuals on line with little patience or tolerance. This clip was categorized as aggressive/disparagement humor that would facilitate arousal in response to the wit, technique, and content of the material (Speck, 1991). Further, it was intended to exaggerate the processes and consequences of negative social evaluation.

Video clip B. This video clip (2:43) was excerpted from the famous sitcom, *Seinfeld (*Ritualcompleter, 2012*)*. Main characters Jerry and Elaine, meet Kramer's new girlfriend, Leslie, who is a designer in men's fashion, and also an obvious "low talker." They find that because she is such a "low talker," they cannot understand when she speaks, and find

themselves resorting to agreeing with everything she says to buffer the social awkwardness. While Kramer is in the bathroom, Jerry and Elaine tell Leslie that Jerry will be making an upcoming appearance on "The Today Show." Since they cannot hear when she speaks, Jerry unknowingly agrees to wear and promote her "puffy" pirate-styled shirt during his upcoming appearance on TV. Elaine greets Jerry prior to the show and, in a fit of laughter, asks why he is wearing such a humiliating shirt. In frustration, Jerry explains that he is forced to wear the shirt on TV since he unknowingly agreed to it at dinner when the "the low talker" asked him to and he mistakenly agreed to it since he could not understand a word she said.

This clip was intended to provide humor that exaggerates the consequences and gaffes in social interaction, and to create safe comic relief. Although the comedic resolution is an unwanted circumstance for the main character, it forces the audience to consider that even the presumed socially savvy cannot skirt the consequences of awkward social interaction. This clip further pokes fun at the stereotyped "low-talker" (a symptom of social anxiety), nuances of social interaction, and the inevitability and inescapability of awkward social circumstances.

Video clip C. This video clip covered an interview between news anchor Brian Williams and actors Larry David and Jeff Garlin, titled "Larry David and the horrors of social intercourse," (2:11) (Lukethelux, 2012). During this interview, Larry David, *Seinfeld* creator and the lead character in *HBO*'s "Curb Your Enthusiasm, " discuss the anxieties and "horrors" of socializing, specifically addressing anguish "at parties and dinner parties where there's a lot of social interaction…and awkwardness… and regrets… and faux pas." He highlights the perceived impossibility of negotiating an exit from a conversation, and explains that it is, "as if you're going to go to jail if you don't come up with something, and you grasp at straws."

This clip was considered affiliative, included overstatement to maximize humor potential, and was intended to spotlight on the distresses and consequences involved in group social settings.

Video clip D. This video was a clip (3:04) from the famous sitcom, *Seinfeld,* in which George Costanza, a generally self-deprecating character with social anxiety realizes that his "life is the complete opposite of everything I [he] want[s] it to be" (Parr, 2008). With enthusiasm, George resolves to "do the opposite" of his typical behaviors, and ultimately succeeds at landing a date with an attractive woman despite his blatant honesty in revealing his flaws. This segment was primarily considered affiliative, and was expected to operate on an "incongruity-resolution" mechanism since George finally operates successfully in social-romantic interaction despite a seemingly self-sabotaging social approach style. This clip also provided arousal-safety humor since the audience is intended to experience anxiety as a result of anticipated failure for George that ultimately translates into a successful and safe outcome.

Video clip E. The final video was segmented into three clips because of its limited availability on YouTube (total time: 5:11). It was comprised of a series of three segmented scenes from *The Big Bang Theory*, a sitcom about four male characters who are roommates and physicists, limited in real-world social savvy. The video spotlights on general social anxiety as well as situational social anxiety related to dating. In the video, Raj, one of the show's protagonists, who has social anxiety related to dating, is out with a girl and assumes it is going well until she sneaks out of the date (Reitz, 2013). Later, she visits his apartment to apologize and confides in him that she has social anxiety, and that although she has been trying to propel herself to engage in social acts, she finds it very difficult. They compare their perceived "serious problems" and ultimately go on a second date, which was designed as a

cell phone "texting date" that allows them to temporarily rely on the safety of text messaging despite being face-to-face. The date is humorous, complements their social anxieties, and ultimately goes decently well (Gunnhfran, 2013; MegaJonesTV, 2013). This video was considered affiliative and was categorized as humor that operated on incongruity-resolution since the socially anxious characters are successful despite their overt social anxiety. It also illustrated and exaggerated the symptoms and consequences of social anxiety in an accepting, affiliative vein, and showcased arousal-safety humor since the audience is assumed to experience empathy for the main characters, and later experience vicarious safety.

An educational but playful cartoon clip on blushing (asapSCIENCE, 2012) was removed from the protocol because it did not meet adequate funniness criteria when materials were prescreened. Further, two online articles from the satirical faux newspaper *The Onion* were removed from the procedure. For example, the article entitled "Anxiety-Ridden Man Rightly Ashamed of Anything He's Ever Done" (2012; Appendix Q) was removed from the procedure since it received divergent funniness ratings from respondents. This article was categorized as "aggressive humor" and was heavily satirical. Some respondents mentioned through anonymous and personal communication that it was "sad" and made them "feel bad." The notion that this aggressive piece facilitated negative emotion instead of amusement and equivocal responses among individuals who identified with social anxiety is interesting to consider, as it seems that the article may have been considered threatening or too personal since it honed in on one (fictional) character. Variations in sense of humor styles as well as potential difficulty recognizing that the article was satirical and fictional (despite listing it as satire) may have also influenced ratings, and might help explain why some rated it as "very

funny" and others rated it as "not funny." In contrast, a video clip that was overtly aggressive in tone and content ("Hating on People and Waiting on Lines"; Clip A) met funniness criteria, perhaps because the objects of negative evaluation were perceived as less personal.

A YouTube clip that is part of a series of social experiments entitled "Do you find me attractive?" (LAHWF, 2012), and an additional Seinfeld clip called "The Puffy Shirt" were pre-screened for funniness after the initial prescreening of materials in order to lengthen the intervention once online articles were removed. In an independent survey, nine additional survey respondents rated "The Puffy Shirt" as "somewhat funny" to "very funny." Although both clips met the funniness criterion and qualified for acceptance into the procedure, because of potential confounding content in the "Do you find me attractive?" video (such as brief mention of straight versus gay sexual attraction preferences), the additional Seinfeld clip was selected as part of the comedic intervention.

Psychoeducational Multimedia Materials. Psychoeducational materials administered to participants in the nonhumor condition included two neutral video clips. Greater than 90% of 36 respondents rated the clips as nonhumorous at pre-screening.

Video clip F. "*What is Social Anxiety Disorder? Health Matters*" accessed through YouTube and provided by the University of California Television (University of California Television, 2008; Appendix D). This clip featured an interactive interview during which two physicians discussed social anxiety and SAD. Further, the clip addressed symptoms and diagnostic considerations, such as blushing and fear of negative evaluation. Clips were purposely segmented from the same video program to best reflect the standard

psychoeducation a person might receive in a therapy forum. This clip was divided (or "spliced") into video clip segments for the purposes of the present study (i.e. 0:00-2:54; 2:54-4:17, 13:08-15:29, 15:30-20:06) in order to roughly match the length of the humorous video clips.

Video clip G. Participants in the nonhumor condition also viewed a video called "Evidence-based treatment planning for social anxiety disorder" (2:35-6:48) (Johnwileysons, 2010). It featured psychologists describing cognitive-behavioral treatment planning for SAD in more depth than the preceding psychoeducational video clips (Appendix D).

A nonfictional article about an NFL player with severe social anxiety entitled "Ricky Williams: A Story of Social Anxiety Disorder" (Anderson, n.d.) taken from the Anxiety and Depression Association of America (ADAA) website, was piloted with the intention of potentially utilizing it as a neutral material. However, two respondents revealed through personal communication that they thought it was "really sad" despite its optimistic conclusion. Therefore, in order to avoid confounding the procedure by inadvertent negative exposure, all online articles were removed from the procedure and only video clips that met criteria for funniness were utilized.

Design

A 2(treatment intervention) x 3(time) mixed factorial repeated-measures design was implemented. A randomized two group with pretest design was used in the current study, which contained both between and within group variables. Participants were also divided into two experimental groups: humor and nonhumor.

Dependent Variables

Dependent variables consisted of measurements of behavioral engagement, which included initial engagement, as reflected in number of selected task choices (at Time II, at post-intervention), and committed engagement, measured by actual completion of tasks (at Time III, or post-study). Subjective measurements included self-report measures of anxiety (State-Trait Anxiety Inventory-State Version; Spielberger, 1983). Dependent variables also included measures of acceptance that correspond to social anxiety (Social Anxiety-Acceptance and Action Questionnaire; MacKenzie & Kocovski, 2010), a measure of self-image (State Self-Esteem Scale; Heatherton & Polivy, 1991) a measure of coping humor, (Coping Humor Scale; Martin & Lefcourt, 1983), and a measure of fear of negative evaluation (Brief Fear of Negative Evaluation Scale; Leary, 1983). Additional dependent variables also included a measure of beliefs related to social perfectionism (Shannon, 2012), and subjective ratings, including ratings of positive affect, in response to video clips (Post-Video Questionnaire; adapted from Vilaythong, 2003).

State-Trait Anxiety Inventory – State Version (STAI-S). The STAI-S (Spielberger, 1983) is a 20-item instrument that measures self-reports of anxiety "at the moment" (Appendix F). Feelings of anxiety are measured on a 4-point Likert scale ranging from 1 ("not at all") to 4 ("very much so"). Items 1, 2, 5, 8, 10, 11, 15, 16, 19, and 20 of the State Trait Anxiety Inventory – State Version (STAI-S) were reverse scored. This instrument has good reliability, producing an alpha coefficient of .91 among a normative sample of college students, and an alpha coefficient of .92-.93 in a sample of men and women ages 19-39. This scale was administered at Time I (pre-intervention) and Time II (post-intervention).

Social Anxiety Acceptance and Action Questionnaire (SA-AAQ). The SA-AAQ was adapted from the AAQ (Hayes et al., 2004), and developed by researchers to measure acceptance related specifically to social anxiety, or social anxiety symptom acceptance (MacKenzie & Kocovski, 2010). It is a nineteen-item instrument with a 7-point Likert scale ranging from 1 ("never true") to 7 ("always true") (Appendix G). Sample items include, "I disapprove of myself when I'm feeling socially anxious" and "I can move toward important goals, even when I'm feeling socially anxious." The SA-AAQ has excellent reliability, with an alpha coefficient of .94 (MacKenzie & Kocovski, 2010). Although this scale is a measure of trait-social anxiety acceptance, instructions were modified to adapt the scale as a "state" measure, by asking participants to rate how they feel "at the present moment." Items 5, 6, 7, 8, 10, and 12 through 18 of the Social Anxiety-Acceptance and Action Questionnaire were reverse scored. This scale was administered at Time I (pre-intervention) and Time II (post-intervention).

State Self-Esteem Scale. The State Self-Esteem Scale (SSES) (Heatherton & Polivy, 1991) is a 20-item scale measuring state self-esteem, or self-esteem at the time of report (Appendix H). It has demonstrated a Cronbach's coefficient alpha of .92 (Heatherton & Polivy, 1991), and is a modified version of the Janis-Field Feelings of Inadequacy Scale (Janis & Field, 1959). The scale measures performance self-esteem, appearance self-esteem, and social self-esteem, accompanied by a 5-point Likert scale ranging from 1 ("not at all") to 5 ("extremely"). Items 2, 4, 5, 8, 10, 13, and 15 through 20 were reverse scored. This scale has been shown to be sensitive to experimental manipulations and has demonstrated strong construct and discriminant validity. The social self-esteem subscale is considered to best

reflect social anxiety and self-consciousness. Social self-esteem was measured with Items 2, 8, 10, 13, 15, 17, and 20 of the State Self-Esteem Scale (Heatherton & Polivy, 1991). This scale was administered at Time II (post-intervention).

Coping Humor Scale. The Coping Humor Scale (CHS) (Martin & Lefcourt, 1983) is a 7-item scale comprised of statements reflecting one's use of humor in responding to stress (Appendix I). Responses are measured on a 4-item Likert Scale ranging from 1 ("strongly disagree") to 4 ("strongly agree"). Items 1 and 4 were reverse-scored. This scale has internal consistency of .60 to .70 and marginal consistency with a Cronbach's coefficient alpha of .61 (Martin & Lefcourt, 1983). Items reflect the use of humor in coping with generally tense or stressful situations in daily life. The instructions and items were adapted for the present study to specifically measure the same construct of coping humor, but related to social anxiety. This scale was administered at Time II (post-intervention).

Brief Fear of Negative Evaluation. The Brief Fear of Negative Evaluation (BFNE) scale (Leary, 1983) is a 12-item instrument that asked participants to rate their worries about negative evaluation on a 5-point Likert scale from 1 ("not at all characteristic of me") to 5 ("very characteristic of me") (Appendix J). Items 2, 4, 7, and 10 were reverse scored.

This instrument has shown good test-retest reliability with an alpha coefficient of .97 and an internal consistency coefficient of .94 (Collins, Westra, Dozois, & Stewart, 2005), and correlates well with other measures of social anxiety (Saluck, Herbert, Rheingold, & Harwell, 2000). This scale was administered at Time II (post-intervention).

Post-Video Questionnaire. The Post-Video Questionnaire (PVQ) was modified from Vilaythong et al. (2003). Evaluation of videos were measured by completion of seven items on a 5-point Likert scale related to ratings that addressed participants' reactions to the materials, including: understanding of the material, funniness of the material, reactive laughter, reactive relaxation, informative quality, and personal relevance (Appendix K). Questions 1, 6, and 7 were added for the purposes of the present study. Although items 1-6 were forced-choice as reflected in Likert-scale ratings, item 7 was utilized as a manipulation check to ensure that participants were attending to the video clips. It was an open-ended question asking, "In one sentence, what have you learned about social anxiety from this clip?" This scale was administered after viewing each of the five video clips.

The Scale of Social Perfectionism. The Scale of Social Perfectionism (SSP), taken from "The Shyness and Social Anxiety Workbook for Teens" (Shannon, 2012), is a scale that measures conviction in socially perfectionistic beliefs. Participants rated each of nine items on a 5-point Likert Scale ranging from 1 ("disagree strongly) to 5 ("agree strongly") (Appendix L). For example, items included, "When I tell a joke, it should be funny to everyone" and "If I stumble on a word, people will think that there is something wrong with me." This scale was administered at Time II (post-intervention).

Behavioral engagement tasks. The Behavioral Engagement Tasks (BET) were created for the present study to measure whether humor influenced behavioral engagement. Behavioral engagement tasks included eight tasks related to revealing social anxiety on Facebook, intended to resemble a graded hierarchy that would be similar to an exposure hierarchy utilized in cognitive-behavioral therapy by varying tasks in presumed ascending

level of anxiety provocation (see Appendix M). Behavioral engagement was measured using two primary outcome measures that included: selection of tasks, and actual completion of tasks. Initial engagement to select tasks reflected total number of choices selected. Selection was assessed at Time II (post-intervention). Completion of tasks measured total number of tasks completed, and was assessed at Time III (post-study follow-up) by visual confirmation that the participant engaged in the task(s) to which he or she originally committed within 24 hours of participation. The proportion of the number of tasks completed to the number tasks selected indicated rate of compliance with tasks.

Social Anxiety Awareness Page. A "Social Anxiety Awareness Page" was created on Facebook (FB) for the purposes of this study in order to provide a platform to measure actual completion of behavioral engagement tasks (Appendix E).

Manipulation Check. In order to ensure that participants were attending to the in-print psychoeducational material, participants responded to questions embedded in the psychoeducational material that tested understanding and applicability of its content. Further, primary data analyses only included data from participants ($N = 65$) who correctly achieved at least 80% accuracy on "Test Your Understanding" on five multiple choice and true/false questions, intended as a further verification to certify basic competency with psychoeducational content (see Appendix P). Further, in order to ensure that participants were attending to multimedia materials, participants were asked to fill out the Post-Video Questionnaire after each viewing. The PVQ served as a manipulation check to determine whether (a) the video clips produced the intended emotional responses (i.e. the social anxiety-

related humor was perceived as funny, and that psychoeducational material was perceived as informative) and (b) participants related its content to features of social anxiety.

Procedure

A structured flow chart of the study procedure is pictured on the next page (*Figure 1*). When participants arrived to the lab, they were seated in a chair at a desk with a booklet and a pen in front of them. They were told that they would be reading materials, watching video clips, and completing questionnaires. The experimenter or graduate research assistant also told them that they would be there to facilitate by playing video clips for them when they were ready to watch video segments, but that the research assistants would otherwise be reading or doing their own work. The experimenter or the research assistant sat to the side of and behind the participant at around a forty-five degree angle to minimize interaction during the video segments. Participants were asked to review and complete the Informed Consent Form (Appendix B). They then completed the demographic information form (Appendix C) and were told to continue to work until the instruction in the text directed them to tell the facilitator (experimenter or research assistant) that they were ready for the video clip.

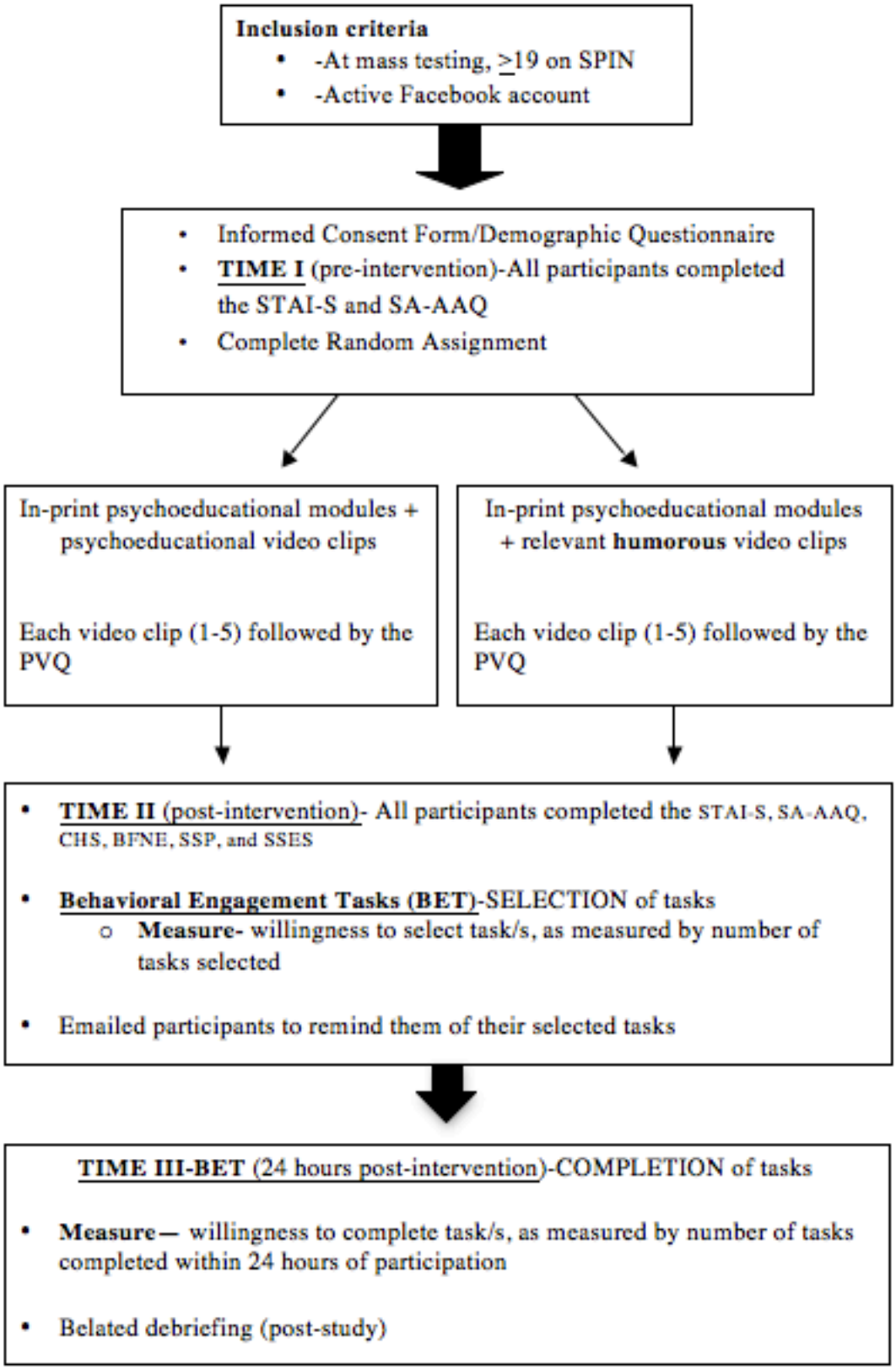

Figure 1. Study Procedure Flow-Chart.

The procedure ran a total of approximately 60 minutes per participant, with approximately 25 minutes spent reading and completing the psychoeducational module, approximately 15 minutes spent viewing video clips and rating the materials, and approximately 20 minutes spent engaged in completing self-report ratings, and making selections on the behavioral engagement measure.

In order to minimize extraneous commercials between videos, the experimenter or trained research assistants manually selected and prepared each video from the playlist out of the participant's view. However, because of the automaticity of YouTube commercials, commercials sometimes played for 1-2 seconds before the experimenter or research assistant were able to end them.

Participants initially filled out pre-intervention (Time I) items, which included the STAI-S and SA-AAQ. After completing these questionnaires, participants were asked to continue working in their booklets and read psychoeducational material on social anxiety that was divided into five sections and included application questions to ensure that participants were attending to the material (Appendix P). Participants were instructed to read the first psychoeducational section, which included excerpted literature from "Understanding Your Social Anxiety" from *The Shyness & Social Anxiety Workbook* (Antony & Swinson, 2008; Appendix P). After completing each section of the psychoeducational module, participants were directed to alert the facilitator that they were ready to move on (e.g. "I am ready to move on to Video 1") (Appendix P). Participants then watched a video clip. Participants in the humor group viewed social anxiety related humorous videos (clips A-E; Appendix D), and

participants in the nonhumor condition viewed psycheoducational neutral video clips (clips F-G; Appendix D). After each video clip, participants filled out the Post-Video Questionnaire (PVQ; Appendix K) and proceeded to read and complete the next psychoeducational segment. Participants generally understood the independent protocol quickly and attended well to the material with minimal questions.

The video clips were built into a simulated psychoeducational session since cognitive behavioral therapists have considered the use of humor in treatment to be most appropriate during the sessions following the initial clinical intake session, when psychoeducational material is typically reviewed (Epstein, 1996). In order to simulate how video clips might be used as an augmentation to standard treatment intervention in a psychoeducational psychotherapy session, such as by brief exposure to supportive material followed by didactic content, or as an adjunct to enrich standard verbal psychoeducation, the procedure was structured so that participants alternated between reading a section of in-print psychoeducational material and watching an online video clip that showcased thematic material related to content of the psychoeducational text. Participants then rated each video clip on the PVQ.

This procedure was repeated until all five sections of the psychoeducational material were read and completed, and video clips were viewed and rated. At this point, Time II, participants repeated two self-report instruments including the STAI-S, SA-AAQ, and also completed the SSES, BFNE, CHS, and SSP scales. They then completed the *selection* component of the Behavioral Engagement Tasks measure by selecting social anxiety related

self-disclosure tasks that they intended to perform.

Part III of the study included a second behavioral engagement component that involved *completion* of tasks utilizing the "Social Anxiety Awareness Page" on Facebook (FB) (Appendix E). After completing Time II measures, participants said, "I am ready to move on to the final part." The experimenter or research assistant then read two paragraphs to the participants that informed them they were selected to participate in the study because of a significant score on a social anxiety measure. They were told that as part of the study, experimenters were trying to increase awareness of social anxiety. They were asked to select and participate in tasks to assist with that goal (see Appendix M). They were told that the more tasks they selected to do the better, and that they would have 24 hours from the time of receiving an email confirming their tasks to provide visual confirmation of task completion in order to be entered into the raffle and receive commensurate tickets. Some participants asked whether they had to sign up to complete any tasks, and were told that it was not a requirement. All tasks asked participants to in some way reveal a connection to social anxiety through Facebook.

Consistent with common practice in cognitive-behavioral therapy for fear-based and anxiety-related disorders, graded tasks were intended to simulate a static exposure hierarchy that presented a list of stimuli or exercises intended to produce a mounting level of anxiety and effort. Therefore, options varied by presumed level of difficulty in revealing social anxiety over a social media platform.

Each ascending task that participants completed earned them an additional ticket in a raffle for a $125 Amazon Gift Card. Options for behavioral engagement included the following:

1. "Like" our "social anxiety awareness page" to build up the "likes" on our page.
2. Select three friends to invite to the Social Anxiety Awareness page from the "Invite your friends to like this page" option.
3. Post a video or article related to social anxiety on your own FB page, whether informative or humorous.
4. Post a status update about a personally socially uncomfortable/awkward experience you've had.
5. Complete task option 3--Post a video or article on your own FB page, whether informative or humorous--but note and acknowledge that it applies to you by adding, "I can relate to this," or "Ha, I can relate to this."
6. Record a brief, personal video about your experience with social anxiety for 3-5 minutes and allow us to use it as part of an educational campaign at Hofstra for incoming freshmen that involves a "video mashup" of different personal anecdotes.
7. "Share" the Social Anxiety Awareness Page on your own timeline.
8. Complete task option 6 and post your video to our Social Anxiety Awareness page.

After committing to selected task options, participants received a manual copy (or "receipt") of the tasks that they selected to perform. They were then informed that they should expect to be contacted by email within an hour of their time of participation from an email

address arranged for the study (i.e. socialanxietyawareness@gmail.com), and thanked for their participation. Participants then received an email with confirmation of their tasks within one hour of participation. An URL link to the social anxiety awareness page was provided within the email message. Within the email message, they were reminded of their participation in the experiment and were provided with the list of tasks that they selected. They were asked to reflect on the video clips that they watched, to perform the tasks that they had chosen within 24 hours of being contacted, and to provide visual evidence that they completed the task (see Appendix O).

The third part of the study, Time III, was demarcated as a measure of completion of task. Confirmation of completion of selected tasks was obtained through visual proof of completion of task by evidence on the Social Anxiety Awareness Page, or by images or "screenshots" of completion of the task emailed to socialanxietyawareness@gmail.com. Participants were also permitted to arrange a time with the experimenter to show proof of completion of task in-person. After completion of the study, and independent of whether participants replied to contact or completed tasks, all participants were emailed debriefing information about the goals of the study and thanked for their participation (see Appendix O).

Data Analysis Method

A repeated-measures factorial ANOVA was conducted. The between-groups variable was the presence of humor; the within-groups variable was time. The repeated measures were the pretest and posttest scores on the STAI-S and SA-AAQ. When applicable, T-tests were used to conduct follow-up analyses. Between-groups analyses were conducted to compare

BFNE, SSES, CHS, and SSP scores, as measured at post-intervention. Between-groups chi-square analyses were performed to compare rates of selection and completion of tasks related to disclosing social anxiety on Facebook. Chi square analyses were also performed to measure rates of compliance with tasks within humor and nonhumor groups. ANOVA's were also conducted to determine the effects of humor on low baseline social anxiety and high baseline social anxiety subgroups in humor and nonhumor conditions. Furthermore, correlational analyses were performed to assess the relationships between related dependent variables within each group.

CHAPTER III.

Results

Manipulation check. As a manipulation check to determine whether the humorous videos provided higher funniness value, and whether the psychoeducational videos provided higher informative value, independent-samples *t*-tests were conducted to compare participant ratings of video clips in humor and nonhumor conditions (see Table 3).

Post-video questionnaires. Table 3 shows the average scores and standard deviations of ratings that participants provided in response to five video clips, as measured by the post-video questionnaire (PVQ). Video clip ratings addressed six characteristics: understanding, funniness, laughter, relaxation, informative quality, and personal relevance.

Understanding. For each of five video clips, participants in both conditions were asked to respond to the question, "How well did you understand the message or situation displayed or described in the video clip?" Between-group differences in mean ratings of level of understanding were not significantly different between the two groups, $t(63)=1.45$, $p = .15$, 95% confidence interval = [-.59,- 0.09], suggesting that humorous and psychoeducational videos clips were rated comparably by participants in both groups in the ability to understand the content of the video clips.

Informative quality. For each of five video clips, participants in both conditions were asked to respond to the question, "How much did you find the video clip informative?" Between group differences in the mean ratings of informative quality were significant, $t(63) = 4.49$, $p < .001$, 95% confidence interval = [-1.56, -0.60], suggesting that psychoeducational

material clips viewed by the nonhumor group were rated as more informative than were the humorous video clips viewed by the humor group. The results were consistent with the intended manipulation.

Funniness. For each of five video clips, participants in both conditions were asked to respond to the question, "How funny did you find the video clip?" Participants in the humor group, who viewed humorous videos, rated the material as significantly funnier than did participants in the nonhumor group, who viewed psychoeducational videos, $t(63) = 11.73$, $p < .001$, 95% confidence interval = [2.07, 2.93]. The results were consistent with the intended manipulation.

Personal relevance. For each of the five video clips, participants in both conditions were asked to the respond to the question, "How well were you able to relate to the content or situation displayed or described in the video clip?" The between-group differences in level of personal relevance of content of video clips was not significant, $t(63) = 1.98$, $p = 0.14$, 95% confidence interval = [-0.16, 1.06], indicating that participants in both groups rated the personal relevance of humorous and psychoeducational video clips comparably on their ability to relate to the contents of the clips.

Laughter. For each of five video clips, participants in both conditions were asked to respond to the question, "How much did you laugh during the video clip?" Between-group differences in the mean ratings of laughter were significant, $t(63) = 8.45$, $p < .001$, 95% confidence interval= [1.51, 2.45], indicating that participants in the humor condition reported

laughing more in response to the humorous video clips than did participants in the nonhumor condition in response to the psychoeducational video clips.

Relaxation. For each of five video clips, participants in both conditions were asked to respond to the question, "How much did you find the video clip relaxing?" Between-group differences in the mean ratings of relaxation were significant, $t(63)= 2.87, p < .001$, 95% confidence interval = [0.24, 1.34], indicating that participants in the humor condition reported feeling more relaxed in response to the humorous video clips than did participants in the nonhumor condition in response to the psychoeducational video clips.

Table 3

Mean Scores and Standard Deviations of Post-video Questionnaire Ratings in Humor and Nonhumor Conditions

Video Characteristic	Humor (n = 31)	Nonhumor (n = 34)
Understanding	4.45 (0.82)	4.70 (0.55)
Informative Quality	3.27 (1.09)	4.35 (0.78)***
Personal Relevance	3.84 (0.61)	3.39 (1.33)
Funniness	3.69 (1.04)***	1.19 (0.65)
Laughter	3.15 (1.20)***	1.17 (0.62)
Relaxation	3.20 (1.14)***	2.41 (1.08)

Note. All mean scores had a possible range from 1 to 5. ***$p < .001$.

Hypotheses

State anxiety. To determine the effect of humor on state anxiety level, as measured by the STAI-S, a repeated measures analysis of variance (RM-ANOVA) was performed. Mean scores, standard deviations, and ranges for the STAI-S are reported in Table 4.

Table 4

Means and Standard Deviations for State Anxiety Scores in Humor and Nonhumor Groups

		Pretest		Posttest	
Group	*n*	*M* (*SD*)	Range	*M* (*SD*)	Range
Humor	31	41.61 (9.97)	25 - 61	35.94 (11.81)	20 - 65
Nonhumor	34	40.44 (12.03)	23 - 68	38.59 (12.43)	21 - 72
Total	65	41.00 (11.03)	23 - 68	37.32 (12.12)	20 - 72

Note. Higher scores imply elevated anxiety levels. Scores had a possible range of 20-80.

All data met the assumptions for a RM-ANOVA. Error terms were distributed normally, and variances were equal. There were no outliers, defined as scores exceeding three standard deviations from the mean (Tabachnick & Fidell, 2007). The Cronbach's alpha for the STAI-S was .92 at pretest and .94 at posttest. The reduction on the STAI-S from pretest to posttest was significant, $F(1, 63) = 13.09$, $p = .001$, $\eta^2 = 0.17$, suggesting that participants reported a significant reduction in anxiety regardless of type of video watched (humor vs.

psychoeducational). However, although the Time x Condition interaction approached significance, $F(1, 63) = 3.38$, $p = .07$, $\eta^2 = 0.05$, participants in the humor condition did not report a significantly greater reduction on the STAI-S over time compared to those in the nonhumor condition. There was no significant difference between the humor and nonhumor conditions on the STAI-S at postintervention assessment, $t(63) = -0.88$, $p = .38$ (see Figure 2).

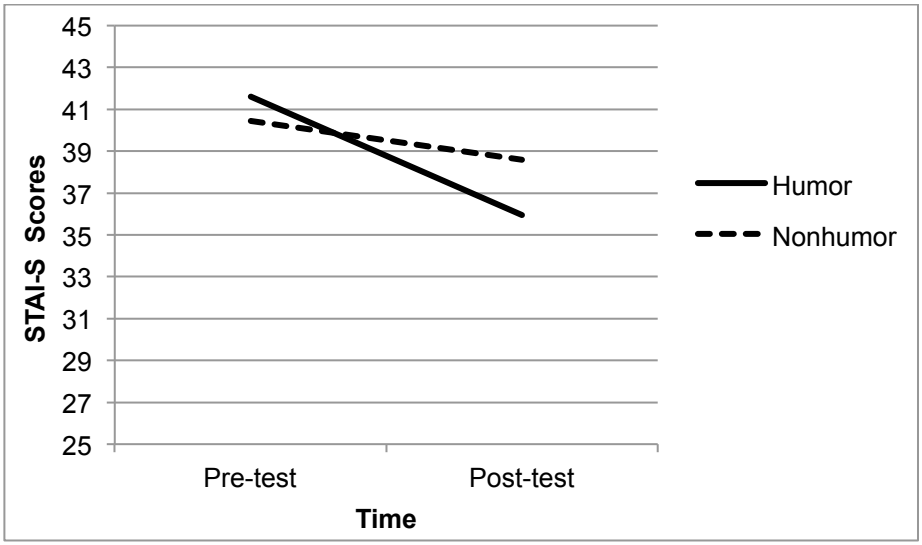

Figure 2. STAI-S = State-Trait Anxiety Inventory - State Form. Mean state anxiety scores of humor and nonhumor groups over time (pretest to posttest).

Social anxiety symptom acceptance. A RM-ANOVA was performed to determine the effects of humor over time (pretest to posttest) on social anxiety symptom acceptance, as measured by the SA-AAQ. Mean scores, standard deviations, and ranges for the SA-AAQ are reported in Table 5.

Table 5

Means and Standard Deviations for Scores of Social Anxiety Symptom Acceptance by Group

Group	*n*	Pretest		Posttest	
		M (*SD*)	Range	*M* (*SD*)	Range
Humor	31	89.94 (19.28)	47 - 116	91.32 (19.15)	50 - 126
Nonhumor	34	85.74 (16.61)	38 - 110	87.88 (18.48)	34 - 124
Total	65	87.74 (17.91)	38 - 116	89.52 (18.73)	34 - 126

Note. Higher scores imply higher levels of acceptance. Scores had a possible range of 19-133.

All data met the assumptions for a RM-ANOVA (specified above). Cronbach's alpha for the SA-AAQ was .89 at pretest and .91 at posttest. Overall, symptom acceptance scores increased from pretest to posttest. However, the within-group main effect for symptom acceptance (from pretest to posttest) was not significant, $F(1, 63) = 1.90, p = .17, \eta^2 = 0.03$. The Time x Condition interaction was also not significant, $F(1, 63) = 0.09, p = .77, \eta^2 = 0.00$, indicating that participants in the humor condition did not report a significant increase in acceptance of social anxiety on the SA-AAQ over time compared to those in the nonhumor condition (see Figure 3). There was no significant difference between the humor and nonhumor conditions on SA-AAQ at postintervention assessment, $t(63) = -0.74, p = .46$.

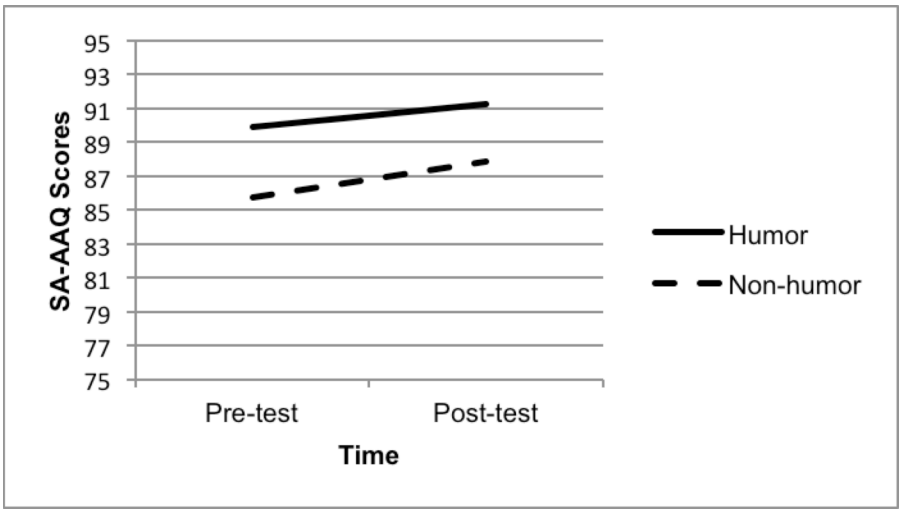

Figure 3. SA-AAQ = Social Anxiety Acceptance and Action Questionnaire.

Mean scores of social anxiety symptom acceptance in humor and nonhumor groups over time (pretest to posttest).

Behavioral engagement tasks. Means, standard deviations, and ranges for the number of behavioral engagement tasks (measured with the BET) that participants selected and completed are reported in Table 6.

Between-group differences in the mean number of selected tasks were nonsignificant, $t(63) = -1.23$, $p = .22$, indicating that after the intervention, participants in the humor and nonhumor groups selected to perform a comparable number of tasks. Between-group differences in mean number of completed tasks were also nonsignificant , $t(63) = 1.61$, $p = .11$, indicating that mean number of tasks completed after the intervention were comparable in both groups.

Table 6

Means and Standard Deviations for Number of Behavioral Engagement Tasks Selected and Completed by Condition (Humor vs. Nonhumor)

		Selected		Completed	
Group	*n*	*M (SD)*	Range	*M (SD)*	Range
Humor	31	2.45 (1.36)	0 - 6	1.77 (1.61)	0 - 6
Nonhumor	34	2.03 (1.40)	0 - 6	1.15 (1.50)	0 - 5
Total	65	2.24 (1.38)	0 - 6	1.45 (1.56)	0 - 6

Note. Higher scores indicate an increased willingness to engage in tasks.

In total, the humor group selected 76 tasks and later completed 55, for a task compliance rate of 72.4%; the nonhumor group selected 69 tasks and later completed 39, for a task compliance rate of 56.5% (see Figure 4). In both the humor and nonhumor groups, 29 individuals selected 1 or more tasks, with 2 individuals in the humor groups selecting no tasks, and 5 individuals in the nonhumor group selecting no tasks. Of the 29 participants who selected to complete tasks in the humor group, 79.3% complied with 1 or more tasks. Of the 29 participants who selected to complete tasks in the nonhumor group, 51.7% complied with 1 or more tasks.

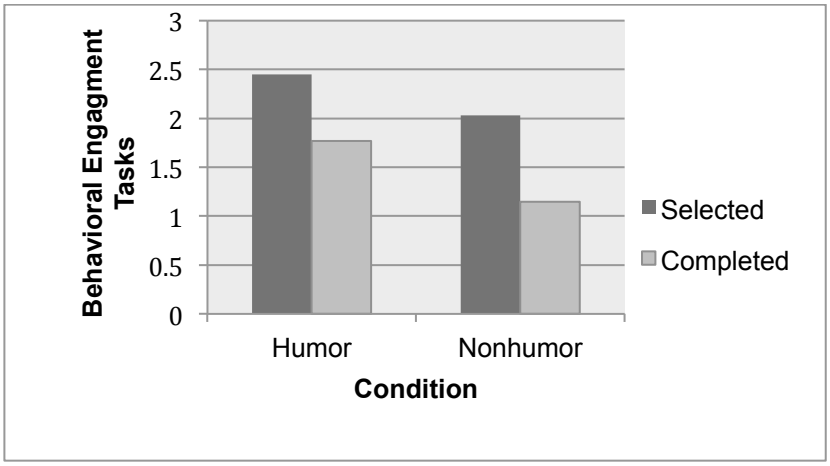

Figure 4. Mean number of behavioral engagement tasks initially selected and later completed by participants in the humor and nonhumor groups.

Table 7

Number of Participants who Selected and Completed Behavioral Engagements Tasks

		Humor (n = 31)			Nonhumor (n = 34)		
#	Task Description	Selected	Completed	Rate	Selected	Completed	Rate
1	Like page	29 (93.5%)	22 (71.0%)	75.9%	27 (79.4%)	14 (41.2%)	51.9%
2	Invite three friends	16 (51.6%)	12 (35.4%)	81.2%	16 (47.1%)	10 (29.4%)	62.5%
3	Post related video	11 (35.5%)	6 (19.4%)	54.5%	8 (23.5%)	6 (17.6%)	75.0%
4	Post status update	4 (12.9%)	2 (6.5%)	50.0%	3 (8.8%)	0 (0.0%)	0.0%
5	Acknowledge	4 (12.9%)	4 (12.9%)	100.0%	4 (11.8%)	3 (8.8%)	75.0%
6	Record personal video	0 (0.0%)	0 (0.0%)	0.0%	0 (0.0%)	0 (0.0%)	0.0%
7	Share page	11 (35.5%)	9 (29.0%)	81.8%	11 (32.4%)	6 (17.6%)	54.5%
8	Post personal video	1 (3.2%)	0 (0.0%)	0.0%	0 (0.0%)	0 (0.0%)	0.0%

Note. For individual tasks, percentages represent the percent of total participants in the group who selected or completed each task. Rate column represents the compliance rate.

To compare the rate of task completion to the rate of task selection for each condition, chi-square tests for independence were performed (see Table 8). The chi-square analyses were performed only on tasks for which there were at least five cases. For the humor group, Tasks 1, 2, and 7 had rates of compliance that departed significantly from 50%. For the nonhumor group, no distinct tasks had rates of compliance that departed significantly from 50%. The chi square value for overall task compliance was significant for the humor group, $\chi^2(1, n = 31) = 15.21, p < .001$, but not for the nonhumor group, $\chi^2(1, n = 34) = 1.17, p = .28$.

Selection rates of behavioral tasks were compared between the humor and nonhumor groups. The overall number of selected tasks did not differ significantly between the humor and nonhumor groups, $\chi^2(1, n = 65) = 1.01$ $p = .31$. Further, there were no significant differences between groups in selection of each of the eight tasks.

Completion rates for each task were then compared between the humor and nonhumor groups. Rates of completion by task for each of the eight behavioral tasks were nonsignificant between groups. However, the humor group showed a strong trend in completing Task 1 ("Like" the Social Anxiety Awareness Page) compared to the nonhumor group, $\chi^2(1, n = 65) = 3.51, p = .06$. Furthermore, the difference for the overall rate of task completion was significant between groups, $\chi^2(1, n = 65) = 3.98, p = .046$, suggesting that the humor group completed significantly more tasks overall than the nonhumor group.

Self-esteem. To evaluate the effect of humor on self-esteem, independent-samples *t* tests were performed to determine if there was a significant difference between the humor and

nonhumor groups for overall self-esteem, measured by the State Self-Esteem Scale (SSES), and social self-esteem, as measured by the Social Self-Esteem subscale of the SSES. The SSES was administered only after the intervention. Mean scores, standard deviations, and ranges for the SSES and the subscale are reported in Table 9. Two participants in the treatment group and one participant in the control group did not complete the SSES because the measure was inadvertently omitted from the first three participant booklets.

Table 8

Chi-square Comparisons of Compliance with Tasks and Between-Groups Comparisons of Completed and Noncompleted Behavioral Engagement Tasks

		Humor (n = 31)		Nonhumor (n = 34)		Between-group comparison	
#	Task Description	Chi square	*p*	Chi square	*p*	Chi square	*p*
1	Like page	7.76	.005	0.04	.85	3.51	.06
2	Invite three friends	4.00	.046	1.00	.32	0.58	.45
3	Post related video	0.09	.76	2.00	.16	0.83	.36
4	Post status update	--	--	--	--	2.10	.15
5	Acknowledge	--	--	--	--	1.14	.29
6	Record personal video	--	--	--	--	--	--
7	Share page	4.45	.04	0.09	.76	1.89	.17
8	Post personal video	--	--	--	--	--	--
	Total	15.21	<.001	1.17	.28	3.98	.046

Note. Chi-square analyses were not computed for expected cell frequencies less than 5.

Table 9

Means and Standard Deviations for Scores of Overall Self-Esteem and Social Self-Esteem in Humor and Nonhumor Groups

		Overall self-esteem		Social self-esteem	
Condition	*n*	*M* (*SD*)	Range	*M* (*SD*)	Range
Humor	29	62.72 (13.53)	31 – 89	22.34 (4.28)	13 – 31
Nonhumor	33	64.52 (14.63)	25 – 92	22.55 (4.96)	11 – 29
Total	62	63.68 (14.04)	25 – 92	22.45 (4.62)	11 – 31

Note. For overall self-esteem, mean scores had a possible range from 20 to 100. For social self-esteem, mean scores had a possible range from 7 to 35. Higher scores implied higher self-esteem.

All data met the assumptions for independent-samples *t* tests. Error terms were distributed normally, variances were equal, and there were no outliers. The Cronbach's alpha was .93 for the SSES, and .86 for the Social Self-Esteem subscale of the SSES. For the overall SSES, the between-group difference was not significant, $t(60) = -0.50$, $p = .62$, 95% confidence interval = [-8.98, 5.40], with a small effect size, Cohen's $d = 0.16$. For the Social Self-Esteem subscale, the difference was also not significant, $t(60) = -0.17$, $p = .87$, 95% confidence interval = [-2.57, 2.17] with a small effect size, Cohen's $d = 0.06$. The results indicated that the participants in the humor condition did not differ significantly from participants in the nonhumor condition in their ratings of either overall self-esteem or social self-esteem.

Use of humor to cope with social anxiety. Data were evaluated to determine if there was a significant difference between the humor and nonhumor groups in ratings of the

likelihood of using humor to cope with social anxiety, as measured with a modified version of the Coping Humor Scale (CHS) that was administered after the intervention. The Cronbach's alpha for the CHS was .73. Mean scores, standard deviations, and ranges for the CHS are reported in Table 10.

The data showed one outlier, defined as a value more than 3 standard deviations from the mean. As a result, the data were negatively skewed and did not meet the assumption of normal distribution required for an independent-samples *t* test. The total score for the CHS was then transformed to its square root, but the data remained too strongly skewed for use in an independent-samples *t* test. The data outlier was therefore removed. The distribution was then normal, and the data showed equality of variances.

Table 10

Means and Standard Deviations for Scores of Use of Humor to Cope with Social Anxiety in Humor and Nonhumor Groups

Condition	*n*	*M* (*SD*)	Range
Humor	31	20.03 (2.60)	16 - 26
Nonhumor	34	20.38 (3.85)	11 - 26
Total	65	20.22 (3.29)	11- 26

Note. Score totals had a possible range from 7 to 28. Higher scores implied higher reported use of coping humor.

An independent samples *t* test was then performed to determine the difference in CHS scores between the humor and nonhumor conditions. The between-group difference was not significant, $t(62) = -1.06$, $p = .30$, 95% confidence interval = [-2.18, .67] with a small effect size, Cohen's $d = 0.09$. The results indicated that the participants in the humor condition did not provide ratings that differed significantly from those in the nonhumor condition in their ratings of the use of humor in coping with social anxiety.

Fear of negative evaluation. To determine the effect of humor on ratings of fear of negative evaluation, the between-group difference between the humor and nonhumor groups, as measured with the Brief Fear of Negative Evaluation (BFNE) Scale, was computed. The BFNE was administered only after the intervention. Mean scores, standard deviations, and ranges for the BFNE are reported in Table 11.

Table 11

Means and Standard Deviations for Scores of Fear of Negative Evaluation in Humor and Nonhumor Groups

Group	*n*	*M* (*SD*)	Range
Humor	31	39.00 (5.64)	28 - 55
Nonhumor	34	38.08 (5.87)	27 - 48

Note. Score totals had a possible range from 12 to 60. Higher scores implied higher reported fear of negative evaluation.

All data met the assumptions for independent-samples *t* tests. Error terms were distributed normally, variances were equal, and there were no outliers. The between-group difference was not significant, $t(63) = .64$, $p = .52$, 95% confidence interval = [-1.94, 3.78], with a small effect size, Cohen's $d = 0.03$, indicating that the participants in the humor condition did not differ significantly from controls in their ratings of fear of negative evaluation.

Social perfectionism. Data were evaluated to determine if there was a significant difference between the humor and nonhumor groups in social perfectionism, as measured by the Scale of Social Perfectionism (SSP) administered after the intervention. Cronbach's alpha for the SSP was .67, which was slightly below the normally accepted threshold of .70. Mean scores, standard deviations, and ranges for the SSP are reported in Table 12.

Table 12

Means and Standard Deviations for Scores of Social Perfectionism in Humor and Nonhumor Groups

Group	*n*	*M* (*SD*)	Range
Humor	31	30.60 (5.72)	20 - 42
Nonhumor	34	29.18 (4.85)	19 - 40

Note. Score totals had a possible range from 9 to 45. Higher scores implied greater social perfectionism.

All data met the assumptions for independent-samples *t* tests. Error terms were distributed normally, variances were equal, and there were no outliers. The between-group difference was not significant, $t(63) = 1.08$, $p = 0.28$, 95% confidence interval = [-1.20, 4.04], with a small effect size, Cohen's $d = 0.17$, indicating that the participants in the humor condition did not differ significantly from controls in scores of social perfectionism.

Intercorrelations of variables. Pearson's product-moment correlation coefficients were computed to determine the intercorrelations of all dependent variables used in this study. Table 13 shows the intercorrelations for the humor condition, and Table 14 shows the intercorrelations for the nonhumor condition.

Examining results by baseline SPIN severity levels. To evaluate whether scores for the dependent variables differed according to levels of social anxiety of the participants at baseline, the participants were divided into two groups based on SPIN scores: SPIN Group 1 ($n = 27$) consisted of participants with mild social anxiety, with scores less than or equal to 30; and SPIN Group 2 ($n = 38$) consisted of participants with moderate to severe social anxiety, with scores of 31 or above. To evaluate between-group differences for all dependent variables based on condition (humor vs. nonhumor) and SPIN score (low vs. high), two-way ANOVA's were performed, with the first factor as the SPIN group and the second factor as the treatment condition (humor vs. nonhumor; see Table 15). All two-way ANOVA results were nonsignificant.

Table 13

Correlations Between Measures for Humor Condition

Measure	BET-selected	BET-completed	STAI-S pretest	STAI-S posttest	SA-AAQ-pretest	SA-AAQ-posttest	CHS	BFNE	SSES	SSES-social scale
BET - selected	--									
BET-completed	.67***									
STAI-S pretest	-.28	-.22								
STAI-S posttest	-.25	-.04	.63***							
SA-AAQ pretest	-.21	-.28	.08	-.10						
SA-AAQ posttest	-.19	-.23	-.03	-.27	.86***					
CHS	-.41*	-.31	-.09	.03	.09	.24				
BFNE	-.16	.12	.12	.20	-.32	-.27	-21			
SSES	. -14	-.18	-.01	.03	.08	.02	.34*	-.73***		
SSES – social scale	-.20	-.29	-.09	-.13	04	.16	.26	-.86***	.84***	
11-SSP	-.19	-.17	.09	.14	.02	-.08	-.33	.53**	-.60**	-.48**

Note. For intercorrelations with self-esteem (overall and social), $N = 29$. For all other intercorrelations, $N = 31$. BET = Behavioral Engagement Tasks; STAI-S = State-Trait Anxiety Inventory-State Form; SA-AAQ = Social Anxiety-Acceptance and Action Questionnaire; CHS = Coping Humor Scale; BFNE = Brief Fear of Negative Evaluation scale; SSES-State Self-Esteem Scale; SSP = Scale of Social Perfectionism.
*$p < .05$. **$p < .01$. ***$p < .001$.

Table 14

Correlations Between Measures for Nonhumor Condition

Measure	BET - selected	BET- completed	STAI-S pretest	STAI-S posttest	SA-AAQ- pretest	SA-AAQ- posttest	CHS	BFNE	SSES	SSES- social scale
BET- selected	--									
BET- completed	.60***									
STAI-S pretest	.08	.01								
STAI-S posttest	.04	.04	.81***							
SA-AAQ pretest	.25	.02	.20	.28						
SA-AAQ posttest	.29	.16	.10	.22	.83***					
CHS	-.25	-.13	,20	.03	.06	.08				
BFNE	-.15	-.16	.04	.01	-.22	-.12	-33			
SSES	-.26	.05	-.07	-.02	-.11	-.07	.52**	-.54**		
SSES – social scale	-.40*	-.12	-.09	-.02	-.16	-.10	.47**	.64***	.89***	
11-SSP	.30	.34*	.03	.05	--.16	-.16	-.42*	.57***	-.55**	-.56**

Note. For intercorrelations with self-esteem (overall and social), $N = 33$. For all other intercorrelations, $N = 34$. BET = Behavioral Engagement Tasks; STAI-S = State-Trait Anxiety Inventory-State Form; SA-AAQ = Social Anxiety-Acceptance and Action Questionnaire; CHS = Coping Humor Scale; BFNE = Brief Fear of Negative Evaluation scale; SSES-State Self-Esteem Scale; SSP = Scale of Social Perfectionism.
*$p < .05$. **$p < .01$. ***$p < .001$.

Table 15

Two-way ANOVAs by Condition (Humor vs. Nonhumor) and Baseline Anxiety (Low vs. High)

Measure	Mean square	*F*	*p*	η^2
STAI-S (pretest)	31.33	0.25	.86	0.01
STAI-S (posttest)	68.25	0.45	.72	0.02
BET (selected)	1.96	0.94	.43	0.04
BET (completed)	2.43	1.04	.38	0.05
SA-AAQ (pretest)	386.74	1.22	.31	0.06
SA-AAQ (posttest)	372.62	1.07	.37	0.05
CHS	1.96	0.17	.91	0.01
BFNE	35.64	1.06	.37	0.05
SSES	42.45	0.21	.89	0.01
SSES (Social subscale)	3.38	0.15	.93	0.01

Note. For SSES and SSES Social Subscale scores, $N = 62$. For all other scores, $N = 65$.

CHAPTER IV.

Discussion

Despite strong support for the use of humorous material as a strategy for influencing cognitive, emotional, and behavioral regulation, there are currently no published studies that have addressed the effects of utilizing "problem relevant humor" through multimedia to enhance treatment for anxiety-related disorders. This study examined whether introducing problem relevant humor had the potential to facilitate a change in cognitive appraisals, emotional states, and behavior in individuals with social anxiety. If so, these results would have implications for the use of problem oriented humor within psychotherapy.

Contrary to hypotheses, results of the present study indicated that viewing problem relevant humor was not significantly associated with subsequent lower state anxiety. Further, humor was not associated with an increase in accepting or flexible appraisals, fear of negative evaluation, social perfectionism, reports of coping humor, overall self-esteem, or social self-esteem. However, although the selection rate of behavioral engagement tasks was comparable between humor and nonhumor groups, participants in the humor condition completed significantly more behavioral engagement tasks than participants in the nonhumor condition. Further, participants in the humor group who selected tasks were more likely to comply with tasks than participants in the nonhumor group. Therefore, the augmentation of problem relevant humor to standard psychoeducational material appeared to increase behavioral responses.

Contrary to the first hypothesis, participants in the humor group did not endorse lower levels of state anxiety than participants in the nonhumor group after the humor-enhanced intervention (i.e., viewing the problem specific humor videos). Participants in both humor and nonhumor conditions reported significantly lower post-intervention state anxiety on the State-Trait Anxiety Inventory-State Form, independent of whether participants viewed nonhumorous (psychoeducational) or problem relevant humorous video clips. The significant reduction in state anxiety in both humor and nonhumor conditions over time might suggest that exposure to psychoeducational material might have been sufficient to facilitate a reduction in state anxiety within participants, as those in the nonhumor group viewed video clips with psychoeducational content. Although there was no statistical significance in the reduction of anxiety between groups, it should be noted that ratings of state anxiety over time were in the expected direction, such that individuals in the problem relevant humor condition reported lower levels of state anxiety. It is possible that the likelihood of detecting significant differences in state anxiety in response to the humor intervention was undermined by low statistical power.

There are a number of explanations that might help clarify the lack of a significant reduction in state anxiety in the humor condition in the present study. For example, in a cross-sectional investigation of the role of sense of humor in moderating stress, anxiety, and depression, Nezu and colleagues (1988) found that although the reported use of coping humor significantly moderated depression, coping humor did not significantly predict or correlate with a reduction in anxiety at baseline and at 2-month follow-up, as measured by STAI-Trait anxiety scores. The authors explained that although humor provokes a response that counters

depression by exciting motor activity and triggering up-regulation of mood, the hyperarousal reaction that accompanies amusement in response to humorous stimuli (Langevin & Day, 1972) might too closely resemble an anxious reaction. Therefore, although the "type" of anxious reaction facilitated by humor might be qualitatively different and less aversive than a more primitive fear-based anxiety reaction, humor and anxiety reaction processes might be too similar to allow for clear identification or cataloging of anxious responding (Nezu et al., 1988). This rationale might help clarify why anxiety scores did not decrease significantly in response to the humor intervention, since differentiation between an anxious response and a humor response might have been difficult for participants to consciously perceive.

Moreover, it is possible that this response process overlap may have been particularly confounded in the present study since the humor material illustrated a particular problem (i.e. social anxiety) relevant to participants (they were selected because they scored high on a social anxiety measure). Although relevant humor has been considered more enjoyable than humor that is less relatable (e.g. Cetola, 1988), the effects of problem relevant material might have further complicated the identifiable differentiation of types of anxiety and humor responses since it is possible that an anxiety response is less neutralized when the topic of the humor is related to a particularly personal problem, as opposed to a more generally relevant topic (e.g., "puberty," as utilized by Cetola, 1988).

Despite significantly higher post-video ratings of funniness, laughter, and relaxation in response to the humorous video clips (as supported by the embedded manipulation check), anxiety scores over time did not a reveal a significant reduction in state anxiety. Although the

positive properties of funniness, laughter, and particularly relaxation, may be largely associated with counterconditioning anxiety (Wolpe, 1958), it appears that the greater endorsements of relaxation reported by the humor group in response to the humorous clips were not discretely or cumulatively adequate to influence global state anxiety over time. Relatedly, the converging effect of humor and anxiety, conceptualized as an "arousal-safety" process (Speck, 1991), was revealed in one instance when a participant in the humor condition expressed anxiety on behalf of the characters in a humorous video clip. In watching a scene from Seinfeld depicting a female "low talker," she commented while laughing, "ahh, I can't [watch]!" and upon the completion of the clip noted, "Oh my god, that was too funny!" Therefore, it is possible that although the humor intervention did not facilitate a significant reduction in self-reported anxiety, it might have introduced a different type of anxiety in the form of transferred excitation. This process would assume that the positive emotion related to amusement from humorous material was intensified by the arousal from the anxiety of anticipating the contents or resolution of the clip, rather than by a significant decrease in anxiety or relief in arousal (Martin, 2007). Hence, it appears that the potentially complex interaction between humor-related arousal and anxiety might help explain the nonsignificant reduction of anxiety observed in the humor condition.

Consistent with the findings of recent studies examining the capacity of individuals with significant social anxiety (Samson et al., 2012) and other identified mental health problems (Bozikas et al., 2011) to understand and appreciate humor, results of the present study revealed that individuals with social anxiety provided consistent ratings to reflect that they understood the humor in the problem relevant humorous video clips and endorsed a

steady appreciation of the humorous material, as reflected in funniness ratings.

Contrary to the second hypothesis, participants in the humor condition did not reveal greater accepting or flexible appraisals. Specifically, participants in the humor condition did not endorse greater acceptance of symptoms related to social anxiety on the Social Anxiety Acceptance and Action Questionnaire (SA-AAQ) subsequent to the humor intervention. Further, independent of the intervention, there was no significant difference within participants over time in their ratings of symptom acceptance related to social anxiety. One possible explanation for the lack of change in symptom acceptance over time in response to humor might be that the brief intervention was not sufficient to improve acceptance, which may be a more complex and less permeable construct than can be positively influenced by a brief manipulation. For example, McKenzie (2008) found that socially anxious participants who underwent a state acceptance induction procedure reported distress levels comparable to participants who underwent a thought suppression induction.

Furthermore, although it was hypothesized that humor would influence symptom acceptance based on humor theory that posits that utilizing humor allows for greater detachment from symptoms and corresponding self-acceptance (e.g., Frankl, 1967), the brief intervention of humor in the present study did not include any explicit instructions related to asking participants to focus on ideas related to acceptance (such as by asking participants to focus on the shared experience of social anxiety). Although participants read and responded to psychoeducational material from a cognitive-behavioral therapy workbook on social anxiety, it did not include a psychoeducational module on acceptance-based principles (such as derived from acceptance and commitment therapy) but instead relied on the participants to

view the humor as relatable to the point of self-acceptance, which is a process that might require more overt and collaborative didactic and experiential direction. Further, the humor manipulation in the present study did not actively engage participants by asking them to apply the humorous material to their personal problem, or to personalize their experience with social anxiety in a comedic fashion, each of which may have had greater potential to influence symptom acceptance over a longer period of time. Therefore, it is possible that the manipulation of humor was not sufficiently applied to influence symptom acceptance.

Although correlations related to social anxiety symptom acceptance (as measured by the SA-AAQ) were nonsignificant, it appeared that in the humor condition, SA-AAQ scores were negatively associated with behavioral task selection and completion. This would potentially indicate that those who were lower in symptom acceptance felt more inclined to act, or that those who were higher in symptom acceptance felt less inclined to act. Therefore, it appears to have influenced a response shift in an inadvertent direction. Although the relationship between symptom acceptance and behavioral engagement remains unclear, it is possible that individuals lower in symptom acceptance felt more compelled to act on an awareness of lower symptom acceptance by engaging in tasks, or that individuals with an awareness of higher symptom acceptance felt less inclined to act. However, the nonsignificance of correlations between symptom acceptance and behavioral engagement suggests that the relationship between behavioral engagement and acceptance as a function of problem relevant humor requires further empirical investigation.

Although humor was theorized to “normalize” the experience of social anxiety to the extent that it was predicted to facilitate more cognitive flexibility and thereby lead to greater

accepting and positive endorsements of beliefs related to social anxiety (e.g. Apter, 1991; Saper, 1987), all measures intended to detect flexibility in beliefs as reflected in self-esteem (SSES), use of coping humor (CHS) fear of negative evaluation (BFNE) or standards of social perfectionism (SSP) were nonsignificant between groups. Nonsignificance of results on these self-report measures can potentially be explained by limitations of the intervention, such as the brevity of the humor intervention, which might not have been sufficient to influence cognitive appraisals and established beliefs. For example, in two studies that found significant differences in reported cognitions in response to a humor augmented intervention in cognitive-behavioral treatment (Smith 1973; Ventis et al., 2001), the use of humor was personalized to the client and was actively applied in treatment sessions in interactive efforts by the therapist and the patient during a standard course of cognitive-behavioral therapy. Further, the higher ratings of coping humor in response to a humor-enhanced intervention detected by Ventis et al. (2001) involved a more consistent and engaging course of humor in therapy, such that participants were asked to personalize their own humor scripts related to their phobia over multiple sessions.

In the present study, it appeared that the tendency to report the use of coping humor, which was measured post-intervention, was not significantly influenced by the exposure to problem relevant humorous material. Therefore, it may be that one's propensity to identify with the use of coping humor is developed over time and practice, rather than as a result of brief exposure to humorous material. In the humor group, coping humor negatively correlated with task selection (BET-selected), $r = -.41$, $p < .05$. It is possible that after participants viewed the humorous video clips, participants with lower ratings of coping humor were more

sensitized to a perceived deficit in using coping humor (relative to its successful comedic depiction in the video clips) and approached the behavioral task selection more seriously. Further, it is possible that by exposing participants in the humor group to "professional" coping humor through comedians and famous television sitcom clips it may have sensitized them to the practice of coping humor. Although past researchers have found that participants increased their ratings of coping humor after actively integrating coping humor into multi-session treatment (Ventis et al., 2001), in the present study, brief exposure to others-generated coping humor might have contributed to participants down-regulating their ratings after viewing successful models of coping humor. Interestingly, in the nonhumor group, ratings of coping humor (CHS) were positively associated with ratings of social self-esteem, $r = .47$, $p < .01$, in addition to general self-esteem, $r = .52$, $p < .01$, and negatively associated with social perfectionism (SSP), $r = -.42$, $p < .05$. These results were nonsignificant in the humor condition. Therefore, although the mechanisms are unclear, it is possible that the more closely contingent ratings of coping humor and social self-esteem observed in the nonhumor group might be related to the nonhumor participants not having been exposed to "professional" coping humor, such as illustrated in the humorous clips.

When further examining intercorrelations in the nonhumor condition, social self-esteem (SSES-social subscale) was negatively correlated with selection of tasks (BET-selected), $r = -.40$, $p < .05$. This would indicate that participants with lower social self-esteem in the nonhumor group selected more tasks than participants with higher self-esteem who might have felt less inclined to choose tasks. Further, in the nonhumor group, higher scores of social perfectionism (SSP) were positively correlated with completion of behavioral tasks, $r =$

.34, p <. 05. Therefore, it is possible that participants in the nonhumor group with higher scores of social perfectionism felt more compelled to complete tasks that they had chosen, and participants with lower scores of social perfectionism felt less compelled to complete tasks after study participation. Thus, it is unclear whether social desirability might have partially mediated task completion in the nonhumor group. However, it is interesting to note that the significant associations in the nonhumor group between social self-esteem and task selection, and social perfectionism and task completion, were not found in the humor group, which potentially suggests that the humor intervention may have decreased social perfectionism since it was not significantly associated with behavioral activity in participants who completed tasks in the humor group.

With the exception of the Scale of Social Perfectionism and the State Self-Esteem Scale, all other scales intended to detect changes in cognitions, such as the Social Anxiety-Acceptance and Action Questionnaire, the Brief Fear of Negative Evaluation Scale, and the Coping Humor Scale were each modified from trait scales to state scales through altered instructions prompting participants to focus on their thoughts in the present moment. Although internal reliability coefficients revealed strong reliability within each of these measures, these self-report scales were constructed and validated as more stable measures of trait characteristics over time, and were therefore potentially not well-suited to detect subtle changes in response to the brief manipulation.

In partial support of the third hypothesis, although participants in the relevant humor group did not *select* a significantly higher number of behavioral engagement tasks than participants in the nonhumor group, participants in the humor condition *completed* a

significantly greater number of behavioral tasks than participants in the nonhumor condition, suggesting that humor significantly influenced behavioral responses. Compliance with tasks, as reflected in higher rates of completion of selected tasks, was also significantly greater in the humor group, suggesting that participants in the humor group complied with tasks more consistently, indicating a meaningful difference in behavioral compliance on tasks that were intended to resemble exposure therapy tasks related to the self-disclosure of social anxiety.

Although the majority of participants in both humor and nonhumor groups were inclined to select to perform BET self-disclosure task 1 ("Like" the Social Anxiety Awareness Page on Facebook), participants in the humor group were significantly more likely to comply with task 1 than participants in the nonhumor group. The greater tendency to "like" the Social Anxiety Awareness Page on Facebook might reflect greater openness or willingness to identify with one's "true self," defined as features of the self that one does not typically share with others in daily life (Bargh, McKenna, & Fitzsimmons, 2002; McKenna, Green, & Gleason, 2002). Utilizing the "like" feature on Facebook has also been positively associated with self-disclosure and emotional disclosure on Facebook (Seidman, 2014). Self-disclosure activities on Facebook are considered particularly significant in that individuals disclose to a dual audience of real-world friends and online friends (Hollenbaugh & Ferris, 2014). Although there were no meaningful differences detected in self-acceptance or symptom acceptance on self-report measures, it is possible that the stronger rate of "Liking" the Social Anxiety Awareness Page on Facebook in the humor group might reflect an applied shift in motivation to identify with social anxiety, or reflect the treatment consistent notion of "acting with" anxiety (Arch & Craske, 2008).

Further, the use of the "Like" and "Comment" features on Facebook that have been classified as pointed connection activities (Burke, Kraut, & Marlow, 2011) have been associated with increasing "bonding social capital" (Lee, Kim, & Ahn, 2014), or the propensity to connect with others over a shared context. Therefore, it is possible that after viewing humorous material that showcased problem relevant humorous associations intended to "normalize" social anxiety, participants were more likely to disclose a shared context related to a quality of theirs that they might not otherwise have been inclined to publicly recognize.

In addition to a significantly higher rate of complying with task 1, participants in the humor group were also significantly more likely to comply with task 2 that involved inviting three friends to "like" the Social Anxiety Awareness Page on Facebook, as well as Task 7, that involved publicly "sharing" the page on Facebook. Although the level of closeness to friends whom the participants invited to "like" the page was not assessed in relation to task 2, the greater behavioral willingness to choose three friends indicated a more intimate or personal act of disclosure than the willingness to "like" or "share" the Facebook page, both of which can be conceived as more public displays. Greater willingness in the humor group to complete the task of inviting three friends to "like" the Social Anxiety Awareness Facebook page appears to meaningfully indicate a willingness on behalf of participants in the humor group to personally disclose to friends that they identified with the condition of social anxiety. Moreover, "liking" and "sharing" the Social Anxiety Awareness page (task 7) entailed varying public displays of willingness to not only identify with an awareness of social anxiety as reflected in "Liking" the Page, but a greater willingness to publicly broadcast the cause by

"sharing" it with one's Facebook community of online friends composed of actual and virtual friends.

The significantly higher rate for task completion of behavioral engagement tasks in the humor group may have important clinical implications. Specifically, although the short-term effects of humor did not facilitate a significant difference in initial selection of self-disclosure tasks, exposure to problem relevant humor facilitated greater long-term behavioral activation outside of the laboratory, as reflected in significantly higher completion of tasks that might be relevant toward overcoming social anxiety. Moreover, by varying tasks according to features such as level of difficulty, the behavioral engagement tasks were intended to reflect graded, hierarchal exposure therapy tasks that might resemble tasks implemented in cognitive-behavioral treatment for anxiety and fear-based disorders. Discernible patterns in the selection and completion of tasks 1-5 of the behavioral engagement tasks indicated that they were in fact generally treated by participants as graded tasks, as reflected in the relatively proportioned pattern of tasks selected and completed, such that as task difficulty increased in level of self-disclosure and effort required, participants were less likely to select or complete tasks. Although no participants completed tasks 6 or 8, that involved recording personal videos and presumably involved the highest degree of time and effort, the significantly higher proportion of participants in the humor group who complied with tasks 1, 2, and 7 may support the potential sustainable effects of problem relevant humor on behavioral activation.

Although there was no significant difference in the mean number of tasks selected and completed between groups, independent of selection of tasks, participants in the humor group completed significantly more behavioral engagement tasks overall than their control

counterparts. Further, although the percentage of participants who selected tasks were comparable between groups, a significantly higher percentage of participants in the humor group completed and complied with tasks. Although there were no significant differences by task between groups in rates of selection, the higher rate of overall task completion in the humor group lend support to the influence of problem relevant humor on sustained behavioral activation.

Moreover, in addition to the higher rate of overall task completion in the humor group, the rate of task compliance was significantly greater than chance in the humor group, suggesting that problem relevant humorous video material had a greater influence on committed engagement than problem relevant psychoeducational material. The significant rate of task compliance in the humor group, such that participants who selected tasks were significantly more likely to complete them, suggests that problem relevant humor appeared to have influenced sustained willingness to complete tasks. Therefore, the integration of problem relevant humor in treatment may provide a useful way of facilitating treatment-compatible behavior such as compliance with therapeutic homework (e.g. exposure therapy tasks), intended to challenge anxious and phobic experiences.

Further, in line with apparent divergence between emotional and behavioral states in response to humor, Nezu et al. (1988) hypothesized that humor as an effective coping aid might only have meaningful utility when actively dealing with an "actual *occurrence*" [p. 524, italics theirs] of a stressful predicament, rather than its use in decreasing general anxiety or anxious expectations. Their theory, that posited that the benefits of humor in reducing anxiety might be contingent on a tangible event, might help explain why participants in the humor

condition were more likely to complete actual behavioral tasks at post-study follow up (Time III) despite no indication of a reduction in their anxiety after the humorous intervention and no indication of significantly higher self-selection of tasks. Further, Ventis et al. (2001) too found that although their problem relevant humor intervention facilitated a significant reduction in fear-related avoidance behavior, it did not facilitate a significant reduction in anxiety scores from pre-treatment to post-treatment. Therefore, although the integration of relevant humor in treatment might effectively moderate fear, a reduction in anxiety is not necessarily implied or concomitant. Nonetheless, although relevant humor might not facilitate a decrease in reported anxiety, it appears to have the potential to facilitate behavioral engagement on tasks that challenge fear (Ventis et al., 2001). Therefore, although there was no significant change in cognitions or emotional states in response to the humor intervention in the present study, the humor intervention appears to have influenced the participants' actions, which in the context of treatment would be considered an advance with practical value.

In considering the mechanisms mediating the significant difference in behavioral engagement between groups, it is possible that exposure to the social anxiety relevant humorous material may have contributed to reducing social anxiety related stigma. For example, it is possible that participants internalized the "normalizing" properties of the problem relevant humor, and felt more self-tolerant or problem-tolerant and relatedly inclined to complete tasks that involved self-disclosure of social anxiety. It is further possible that the higher rate of behavioral engagement in the humor group might be related to the attenuated perception of threat. More specifically, although there was no measure of attitudes toward

behavioral tasks, it is possible that participants in the humor condition were more inclined to consider the behavioral tasks as a positive challenge rather than a social threat, an explanation that has been described by researchers in response to similar findings of higher behavioral task engagement in response to humorous material (e.g. Kuiper et al., 1995). Further, although there was no measure of physiological reactivity, it is also possible that participants in the humor condition had stronger physiological arousal reactions, which may have influenced their behavioral responses.

Finally, recent research has supported the idea that a reduction in anxiety may not be a necessary prerequisite for increased behavioral engagement in socially anxious individuals. Clerkin and Teachman (2010) found that by manipulating positive conditioning through implicit association training that paired positive facial feedback with personalized stimuli depicting successful performance, socially anxious participants were found to spend more time engaged in a speech task and were more likely to complete the task. Similarly, in the present study, although there was no operable measure of positive conditioning or explicit conditioning trials, the greater rates of task completion and compliance found in the humor group might reflect a subtle reconditioning of attitudes towards social anxiety that facilitated behavioral engagement.

Theories of social anxiety disorder have conceptualized social anxiety in nonclinical samples to fall along the same clinical continuum as individuals with severe social anxiety (Rapee & Heimberg, 1997). The entrance criteria for socially anxious participants in the present study included the diagnostic eligibility standard that has been reliably used to differentiate between anxious and control subjects in research (Connor et al., 2000). However,

in order to better examine the effects of problem relevant humor in socially anxious participants in the present study, humor and nonhumor groups were divided into high and low baseline social anxiety groups. Analyses revealed that there were no meaningful interactions between level of severity and behavioral engagement. It appeared that problem relevant humor influenced behavioral engagement across the continuum of severity of social anxiety, suggesting that the effects of problem relevant humor could potentially be useful for enhancing treatment with both clients with moderate to severe social anxiety and individuals with more mild social anxiety.

The present study had specific limitations. For example, it is possible that the likelihood of detecting significant differences in statistical trends, such as the trends observed in the reduction of state anxiety over time in the humor condition, as well as the greater rate of completion of task 1 in the humor group, were undermined by a lack of statistical power in the present study. Limited statistical power as a result of modest sample size ($N = 65$) may have contributed to weakening the ability to draw statistical comparisons.

Although participants in the present study appeared to draw the connection between the humorous material and the problem of social anxiety, as reflected in their responses to the manipulation check on the Post-Video Questionnaire that asked them to record what they have learned about social anxiety from each video clip, the investigation of the effects of humor might have also benefited from a stronger humor manipulation and application of content. For example, it would have been useful to lengthen the humor manipulation over a greater number of sessions, or incorporate a discussion of the problem relevant humorous content and its significance, such as its relationship to "normalizing" the problem of social

anxiety. Moreover, the application of relevant humor material in clinical settings, such as within psychotherapy sessions, might involve a collaborative discussion of the humor material in order to guide the client to discover the properties of the humor material in relation to his or her problem. Ideally, the client would come to recognize the implicit value in personalizing the humor material to his or her problem, in affording the client the ability to gain problem-related perspective, such as by relativizing the negatives associated with the problem, facilitating comic relief, and reframing the problem in a way that contributes to an appreciation of the shared context associated with the problem. The humorous material would then become a helpful treatment cue between and within ongoing treatment sessions that would be suited to help the client acknowledge the circumstances associated with the problem more lightly, in a way that encourages activity that challenges his or her problem. Furthermore, although the current study included humorous video clips, problem relevant text articles also serve to expand novel and engaging options for integrating humorous material into treatment.

To strengthen internal validity, the study design might have benefited from the addition of a third group, such as a positive treatment group, or a nonrelevant humor group. The addition of a nonrelevant, positive condition was not integrated into the design since nonrelevant humor or an alternative positive induction would likely have provided a distraction, and although the distraction of humor can be useful in emotion regulation in general (Samson & Gross, 2012), it would be considered countertherapeutic in the context of treatment and would therefore have limited real-world validity. However, it would have been useful to utilize a third positive treatment group in order to better isolate the mechanisms of

humor (e.g. to control for physiological response), or to provide an important theoretical comparison. Further, as described above in relation to the second hypothesis, the use of modified trait scales in the present study were likely not adequate to detect subtle changes in response shift. Future designs might benefit from carefully incorporating state scales that are more sensitive to brief changes in current states rather than assessing response shift on traits or more stable beliefs.

Although participants were randomly assigned to humor and nonhumor conditions, it would have been helpful to have included a baseline measure of Facebook use activity and level of Facebook privacy settings to determine whether Facebook activity at baseline predicted or correlated with willingness to select, complete, and comply with tasks. Moreover, a baseline measure of participants' level of identification with the problem of social anxiety would have provided control and predictor variables for willingness to select and complete self-disclosure tasks related to social anxiety. Further, it would have been useful to prescreen behavioral exposure tasks items in order to secure an ordinal dependent measure for analogue exposure therapy tasks by rankings of level of difficulty or anxiety provocation for each engagement task.

With regard to the behavioral engagement tasks specific to the socially anxious population, future studies might include actual (rather than virtual) behavioral tasks that might have stronger real world implications unmediated by Internet use. Since individuals with social anxiety have been shown in some research to prefer virtual communication (Sheeks & Birchmeier, 2007), interpersonal behavioral engagement tasks unrelated to online social

communication might more sensitively measure the generalizability of the effects of problem relevant humor.

Further, since humor has been shown to increase positive affect (e.g. Samson & Gross, 2012), and the results of the present study found that participants in the humor condition endorsed significantly higher ratings of low positive affect (i.e. relaxation), a discriminant measure of positive affect would have been a useful measure in the present study in order to assess the degree to which individuals reported positive emotional states. A measure of positive affect might further help explain the degree to which positive emotion interacts with anxiety in response to relevant humorous stimuli. Moreover, future researchers might continue to explore the utility of integrating problem relevant humor into treatment to determine whether it has the potential to increase hopeful expectations in treatment. For example, since exposure to humorous video material has been shown to influence state hopefulness in an undergraduate college student sample (Vilaythong et al., 2003), future research would benefit from investigating the effects of problem relevant humor on a positive affect, such as hopefulness, as a potential moderator of behavioral engagement in individuals with an identified problem.

Although the present study was intended to measure the effects of relevant humor on young adult students with a specific problem (i.e. social anxiety), future research might investigate the effects of relevant humor across identified problems and age groups. Since Internet associated technology is increasing rapidly, it allows for the ease of accessibility of video materials online. As therapeutic platforms are becoming increasingly technologically

involved and advanced, available humorous material can be utilized to portray many treatment relevant themes, dispositions, and problem topics. The integration of multimedia materials has the potential to provide targeted avenues for engaging and "normalizing" relevant problems among clients and across age groups (e.g. in adolescents, or in the elderly), developmental stages of life (e.g. parental anxieties), and diverse, yet specific psychological problems (such as subtypes of OCD).

More specifically, problem relevant humor as a treatment applicable referent can provide a convenient heuristic in "normalizing" a shared human experience that might be feared, overstressed, or self-pathologized by clients. Therefore, the potential value of introducing problem relevant humor in treatment is an encouraging area for future clinical research. For example, in order to facilitate behavioral engagement, clinicians might collaborate with clients to construct anxiety and fear-based exposure hierarchies in session after viewing or discussing problem relevant humorous material. Clinicians might also encourage their clients to review problem relevant humorous material at home to serve as an engaging treatment cue. Although the humorous intervention in the present study did not involve a collaborative processing or integrative discussion of the humorous material since there was no therapist involvement, future studies might benefit from a more targeted approach to assimilating what the problem relevant material meant to the client, and how he or she might apply it. Moreover, as therapists grow an awareness of their clients' traits, schemas, cognitive styles, and behavioral patterns, they can personalize the portfolio of humorous material in a way that is not only problem relevant but also client tailored. Through the application of problem relevant humor as an explicit technique to reframe or "normalize"

aspects of the human experience, clinicians can become better equipped to use humor to amplify the funniness and universality in real-life problems and consequences.

Although the results of the present study did not reveal changes in cognitive or emotional states, such as a significant reduction of anxiety or an increase in symptom acceptance in response to problem relevant humor, the application of problem relevant humor was associated with greater completion of self-disclosure related behavioral tasks, as well as greater rates of task compliance among participants in the humor condition who were more likely to follow through with behavioral tasks that they originally selected. Since research has indicated that between-session homework compliance is a strong and important predictor of positive outcomes in the cognitive-behavioral treatment of anxiety disorders, (Lebeau, Davies, Culver, & Craske, 2013), future research would benefit from building upon the present study and examining the effects of problem relevant humor on populations with identified clinical problems (e.g. obsessive compulsive disorder). For example, to determine whether exposure to problem relevant humorous video clips can promote treatment compliance by influencing behavioral activity outside of the treatment session, it would be useful to investigate whether problem relevant humor can moderate between-session homework compliance. The present study has revealed that the application of problem relevant humor appears to provide a promising enhancement tool to strengthen behavioral responses. Therefore, it has provided an empirical basis for continuing to investigate the effects of integrating problem relevant humor into therapeutic initiatives.

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Appendix A

Social Phobia Inventory (SPIN)

Beside each statement below, please mark the box that best describes how you have been feeling during the last week.

		0: not at all	*1: a little bit*	*2: somewhat*	*3: very much*	*4: extremely*
1	I am afraid of people in authority					
2	I am bothered by blushing in front of people					
3	parties and social events scare me					
4	I avoid talking to people I don't know					
5	Being criticized scares me a lot					
6	I avoid doing things or speaking to people for fear of embarrassment					
7	Sweating in front of people causes me distress					
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 are among my worse fears					
16	I avoid speaking to anyone in authority					
17	Trembling or shaking in front of others is distressing to me					

Appendix B

Informed Consent Form

Hofstra University
Hempstead, NY 11549
Department of Psychology

The following research study about anxiety is part of a doctoral dissertation being conducted at the Hofstra University Department of Psychology by Rachel Ginsberg, M.A., under the supervision of William C. Sanderson, Ph.D.

As a participant you will be asked to attend one 60-minute session in which you will read materials and watch videos about social anxiety. You will be asked to answer several questionnaires, which assess thoughts and feelings. In addition, you will be asked to participate in a task that involves self-disclosure on Facebook. You may choose to perform one or more of these tasks.

The results of this study will allow us to better understand the use of multimedia as an educational tool. Your responses will be held in confidence, will remain confidential, and will not be released to anyone. Upon completion of the 1-hour session, you will receive 2 research credits toward the Introductory Psychology class you are taking this semester. You may withdraw from the project at any time without penalty of any sort.

Foreseeable risks may include feelings of anxiety or discomfort that may arise from completing the test items or watching the videos. If anxiety persists, please contact Hofstra's PERCC services at (516) 463-6535.

Foreseeable benefits include the opportunity to take part in psychological research on social anxiety, and potentially being entered into a raffle for an Amazon gift card.

I am very appreciative of your participation and will be happy to answer any questions you may have. You may call Rachel Ginsberg, MA, at 516 619 6582, or Dr. William Sanderson at (516) 463-5633 with questions or concerns.

Also, if you would like, I will share the findings of the study with you when it is completed. Again, thank you for your cooperation.

Sincerely,

Rachel E. Ginsberg, M.A.

_____

I have read and understand the information given above and agree to participate in this project. I understand that I may receive a copy of this consent form.

Signature _____
Date _____

Appendix C

Demographic Information Form

1. Please indicate gender:

- Male
- Female

2. Please indicate your age:

3. Please indicate your race:

- American Indian / Native American
- Asian
- Black / African American
- Hispanic / Latino
- White / Caucasian
- Pacific Islander
- Other

4. Year in School:

- Freshman
- Sophomore
- Junior
- Senior
- Graduate Student

Appendix D

Multimedia List

Humor Materials

A) Louis C.K. Hating on People and Waiting in Lines

http://www.youtube.com/watch?v=TRFa6e63-iY (2:37)

B) The Low Talker (2:44)

http://www.youtube.com/watch?v=BFRoXoh6aks

C) Larry David on the Horrors of Social Intercourse

http://www.youtube.com/watch?v=7ky8yzS4VZYY (2:11)

D) George Costanza Does The Opposite (3:05)

http://www.youtube.com/watch?v=cKUvKE3bQlY

E) Big Bang Theory Date, Post-Date Conversation, and Texting Date

https://www.youtube.com/watch?v=KayvgGaWKM0 (1:04) https://www.youtube.com/watch?v=26nr03IG488 (1:04)
https://www.youtube.com/watch?v=vfaU9zFLBnE (3:03)

Nonhumor Materials

F) What is Social Anxiety Disorder? Health Matters
University of California Television

http://www.youtube.com/watch?v=4truuD_xMP0
(0:00-2:54; 2:54-4:17, 13:08-15:29, 15:30-20:06)

G) **Evidence-Based Treatment Planning for Social Anxiety Disorder**
https://www.youtube.com/watch?v=uVj3rBb4SqY (2:35-6:48)

Appendix E

Social Anxiety Awareness Page Facebook-Sample Image

Appendix F

State-Trait Anxiety Inventory – State Form (STAI-S; Spielberger, 1983)

Directions: A number of statements which people have used to describe themselves are given below. Read each statement and then circle the appropriate response to the right of the statement to indicate **how you feel *right* now, that is, *at the present moment, not in general***. There are no right or wrong answers. Do not spend too much time on any one statement but give the answer which seems to describe your present feelings best.

	NOT AT ALL	**SOMETIMES**	**MODERATELY SO**	**VERY MUCH SO**
1. I feel calm.	**1**	**2**	**3**	**4**
2. I feel secure.	**1**	**2**	**3**	**4**
3. I am tense.	**1**	**2**	**3**	**4**
4. I feel strained	**1**	**2**	**3**	**4**
5. I feel at ease	**1**	**2**	**3**	**4**
6. I feel upset	**1**	**2**	**3**	**4**
7. I am presently worrying over possible misfortunes	**1**	**2**	**3**	**4**
8. I feel satisfied	**1**	**2**	**3**	**4**
9. I feel frightened	**1**	**2**	**3**	**4**
10. I feel comfortable	**1**	**2**	**3**	**4**
11. I feel self-confident	**1**	**2**	**3**	**4**
12. I feel nervous	**1**	**2**	**3**	**4**
13. I feel jittery	**1**	**2**	**3**	**4**
14. I feel indecisive	**1**	**2**	**3**	**4**
15. I am relaxed	**1**	**2**	**3**	**4**
16. I feel content	**1**	**2**	**3**	**4**
17. I am worried	**1**	**2**	**3**	**4**
18. I feel confused	**1**	**2**	**3**	**4**
19. I feel steady	**1**	**2**	**3**	**4**
20. I feel pleasant	**1**	**2**	**3**	**4**

Appendix G

Social Anxiety-Acceptance and Action Questionnaire (SA-AAQ)

Please respond to the following items focusing on social anxiety.

Social anxiety is the type of anxiety that is experienced when you are in situations where you may be observed, judged or evaluated by others. Common situations that provoke social anxiety include giving a presentation or speech, attending a job interview, going to a party, meeting new people, and going on a blind date. Please think about the anxiety you may experience when you are in these types of situations while you answer the questions below on the following 7-point scale.

Please rate <u>how you feel right now, that is, at the present moment, not in general.</u>

1. Despite feeling socially anxious at times, I am in control of my life.	**1 Never True**	**2 Very Seldom True**	**3 Seldom True**	**4 Some-times true**	**5 Frequently true**	**6 Almost Always True**	**7 Always True**
2. If I am anxious in a social situation, I can still remain in it.	**1 Never True**	**2 Very Seldom True**	**3 Seldom True**	**4 Some-times true**	**5 Frequently true**	**6 Almost Always True**	**7 Always True**
3. There are not many activities that I stop doing when I am feeling socially anxious.	**1 Never True**	**2 Very Seldom True**	**3 Seldom True**	**4 Some-times true**	**5 Frequently true**	**6 Almost Always True**	**7 Always True**
4. I get on with my life even when I feel socially anxious.	**1 Never True**	**2 Very Seldom True**	**3 Seldom True**	**4 Some-times true**	**5 Frequently true**	**6 Almost Always True**	**7 Always True**
5. Being socially anxious makes it difficult for me to live a life that I value.	**1 Never True**	**2 Very Seldom True**	**3 Seldom True**	**4 Some-times true**	**5 Frequently true**	**6 Almost Always True**	**7 Always True**
6. I would gladly sacrifice important things in my life to be able to stop being socially anxious.	**1 Never True**	**2 Very Seldom True**	**3 Seldom True**	**4 Some-times true**	**5 Frequently true**	**6 Almost Always True**	**7 Always True**

7. I care too much about whether or not I feel anxious in social situations.	**1 Never True**	**2 Very Seldom True**	**3 Seldom True**	**4 Some-times true**	**5 Frequently true**	**6 Almost Always True**	**7 Always True**
8. I worry about not being able to control social anxiety.	**1 Never True**	**2 Very Seldom True**	**3 Seldom True**	**4 Some-times true**	**5 Frequently true**	**6 Almost Always True**	**7 Always True**
9. I can move toward important goals, even when I am feeling socially anxious.	**1 Never True**	**2 Very Seldom True**	**3 Seldom True**	**4 Some-times true**	**5 Frequently true**	**6 Almost Always True**	**7 Always True**
10. My social anxiety must decrease before I can take important steps in my life.	**1 Never True**	**2 Very Seldom True**	**3 Seldom True**	**4 Some-times true**	**5 Frequently true**	**6 Almost Always True**	**7 Always True**
11. My social anxiety does not interfere with the way I want to live.	**1 Never True**	**2 Very Seldom True**	**3 Seldom True**	**4 Some-times true**	**5 Frequently true**	**6 Almost Always True**	**7 Always True**
12. I find myself going around and around in circles thinking about my social anxiety.	**1 Never True**	**2 Very Seldom True**	**3 Seldom True**	**4 Some-times true**	**5 Frequently true**	**6 Almost Always True**	**7 Always True**
13. It seems like I'm fighting with myself about my social anxiety.	**1 Never True**	**2 Very Seldom True**	**3 Seldom True**	**4 Some-times true**	**5 Frequently true**	**6 Almost Always True**	**7 Always True**
14. I have thoughts about social anxiety that I get caught up in.	**1 Never True**	**2 Very Seldom True**	**3 Seldom True**	**4 Some-times true**	**5 Frequently true**	**6 Almost Always True**	**7 Always True**
15.1 tell myself that I shouldn't have certain thoughts about social anxiety.	**1 Never True**	**2 Very Seldom True**	**3 Seldom True**	**4 Some-times true**	**5 Frequently true**	**6 Almost Always True**	**7 Always True**
16. I criticize myself for having irrational or inappropriate social anxiety.	**1 Never True**	**2 Very Seldom True**	**3 Seldom True**	**4 Some-times true**	**5 Frequently true**	**6 Almost Always True**	**7 Always True**

17. I believe that having socially anxious thoughts is abnormal or bad and I shouldn't think that way.	**1 Never True**	**2 Very Seldom True**	**3 Seldom True**	**4 Some-times true**	**5 Frequently true**	**6 Almost Always True**	**7 Always True**
18. I make judgments about whether my thoughts about my social anxiety are good or bad.	**1 Never True**	**2 Very Seldom True**	**3 Seldom True**	**4 Some-times true**	**5 Frequently true**	**6 Almost Always True**	**7 Always True**
19. I disapprove of myself when I feel socially anxious.	**1 Never True**	**2 Very Seldom True**	**3 Seldom True**	**4 Some-times true**	**5 Frequently true**	**6 Almost Always True**	**7 Always True**

Appendix H

State Self-Esteem Scale (SSES)

This is a questionnaire designed to measure what you are thinking at this moment. There is of course, no right answer for any statement. The best answer is what you feel is true of yourself at the moment. Be sure to answer all of the items, even if you are not certain of the best answer. Again, answer these questions as they are true for you **RIGHT NOW.**

1. I feel confident about my abilities.	1 Not at all	2 A little bit	3 Somewhat	4 Very Much	5 Extremely
2. I am worried about whether I am regarded as a success or failure.	1 Not at all	2 A little bit	3 Somewhat	4 Very Much	5 Extremely
3. I feel satisfied with the way my body looks right now.	1 Not at all	2 A little bit	3 Somewhat	4 Very Much	5 Extremely
4. I feel frustrated or rattled about my performance.	1 Not at all	2 A little bit	3 Somewhat	4 Very Much	5 Extremely
5. I feel that I am having trouble understanding things that I read.	1 Not at all	2 A little bit	3 Somewhat	4 Very Much	5 Extremely
6. I feel that others respect and admire me.	1 Not at all	2 A little bit	3 Somewhat	4 Very Much	5 Extremely
7. I am dissatisfied with my weight.	1 Not at all	2 A little bit	3 Somewhat	4 Very Much	5 Extremely

8. I feel self-conscious.	1 Not at all	2 A little bit	3 Somewhat	4 Very Much	5 Extremely
9. I feel as smart as others.	1 Not at all	2 A little bit	3 Somewhat	4 Very Much	5 Extremely
10. I feel displeased with myself.	1 Not at all	2 A little bit	3 Somewhat	4 Very Much	5 Extremely
11. I feel good about myself.	1 Not at all	2 A little bit	3 Somewhat	4 Very Much	5 Extremely
12. I am pleased with my appearance right now.	1 Not at all	2 A little bit	3 Somewhat	4 Very Much	5 Extremely
13. I am worried about what other people think of me.	1 Not at all	2 A little bit	3 Somewhat	4 Very Much	5 Extremely
14. I feel confident that I understand things.	1 Not at all	2 A little bit	3 Somewhat	4 Very Much	5 Extremely
15. I feel inferior to others at this moment.	1 Not at all	2 A little bit	3 Somewhat	4 Very Much	5 Extremely
16. I feel unattractive.	1 Not at all	2 A little bit	3 Somewhat	4 Very Much	5 Extremely

Appendix I

The Coping Humor Scale (CHS)

Please indicate the extent to which you agree or disagree with each statement by circling the appropriate number. **Please indicate to what extent you feel this way <u>right now</u>, <u>that is, at the present moment, not in general.</u>**

1) I often lose my sense of humor when I am having problems related to social anxiety.

1 Strongly disagree **2** Mildly disagree **3** Mildly agree **4** Strongly agree

2) I have often found that problems related to my social anxiety have been greatly reduced when I try to find something funny with them.

1 Strongly disagree **2** Mildly disagree **3** Mildly agree **4** Strongly agree

3) I usually look for something comical to say when I am in tense social anxiety provoking situations.

1 Strongly disagree **2** Mildly disagree **3** Mildly agree **4** Strongly agree

4) I must admit my life would probably be a lot easier if I had more of a sense of humor when dealing with social anxiety.

1 Strongly disagree **2** Mildly disagree **3** Mildly agree **4** Strongly agree

5) I feel that if I am in a social anxiety-provoking situation where I have to either laugh or cry, it's better to laugh.

1 Strongly disagree **2** Mildly disagree **3** Mildly agree **4** Strongly agree

6) I can usually find something to laugh or joke about even in trying socially anxiety-provoking situations.

1 Strongly disagree **2** Mildly disagree **3** Mildly agree **4** Strongly agree

7) It has been my experience that humor is often a very effective way of coping with social anxiety.

1 Strongly disagree **2** Mildly disagree **3** Mildly agree **4** Strongly agree

Appendix J

Brief Fear of Negative Evaluation Scale (BFNE)

Read each of the following statements carefully and indicate how characteristic it is of you according to the following scale.

	Not at all characteristic of me	**A little characteristic of me**	**Somewhat characteristic of me**	**Very characteristic of me**	**Entirely characteristic of me**
1. I worry about what other people will think of me even when I know it doesn't make any difference.	1	2	3	4	5
2. I am unconcerned even if I know people are forming an unfavorable impression of me.	1	2	3	4	5
3. I am afraid of other people noticing my shortcomings.	1	2	3	4	5
4. I worry about what kind of impression I am making on someone.	1	2	3	4	5
5. I am afraid others will not approve of me.	1	2	3	4	5
6. I am afraid that people will find fault with me.	1	2	3	4	5
7. Other people's opinions of me do not bother me.	1	2	3	4	5
8. When I am talking to someone, I worry about what they may be thinking about me.	1	2	3	4	5
9. I am worried about what kind of impression I make.	1	2	3	4	5
10. If I know someone is judging me, it tends to bother me.	1	2	3	4	5
11. If I know someone is judging me, it has little effect on me.	1	2	3	4	5
12. I worry that I will say or do the wrong things.	1	2	3	4	5

Appendix K

Post-Video Questionnaire (PVQ)

1. How well did you understand the message or situation displayed or described in the video clip?

1 not at all 2 3 4 5 quite a bit

2. How funny did you find the video?

1 not funny at all 2 3 4 5 extremely funny

3. How much did you laugh during the video clip?

1 not at all 2 3 4 5 quite a bit

4. How much did you find the video clip relaxing?

1 not at all 2 3 4 5 quite a bit

5. How much did you find the video clip informative?

1 not at all 2 3 4 5 extremely informative

6. How well were you able to relate to the content or situation displayed or described in the video clip?

1 not at all 2 3 4 5 quite a bit

7. In one sentence, what have you learned about social anxiety from this video clip?

_____

_____

Appendix L

Scale of Social Perfectionism (SSP)

1) When I tell a joke, it should be funny to everyone

1 Strongly disagree **2** Mildly disagree **3** Neither agree/disagree **4** Mildly agree **5** Strongly agree

2) If I stumble on a word, people will think there is something wrong with me

1 Strongly disagree **2** Mildly disagree **3** Neither agree/disagree **4** Mildly agree **5** Strongly agree

3) If I say something that turns out to be wrong, people will think I'm stupid

1 Strongly disagree **2** Mildly disagree **3** Neither agree/disagree **4** Mildly agree **5** Strongly agree

4) If I forget people's names, they will think I don't care about them

1 Strongly disagree **2** Mildly disagree **3** Neither agree/disagree **4** Mildly agree **5** Strongly agree

5) If someone criticizes what I'm wearing, I have bad taste in clothing

1 Strongly disagree **2** Mildly disagree **3** Neither agree/disagree **4** Mildly agree **5** Strongly agree

6) Awkward silences don't happen in normal conversations

1 Strongly disagree **2** Mildly disagree **3** Neither agree/disagree **4** Mildly agree **5** Strongly agree

7) If I say something that someone takes the wrong way, I am insensitive

1 Strongly disagree **2** Mildly disagree **3** Neither agree/disagree **4** Mildly agree **5** Strongly agree

8) When giving an oral presentation, I should be relaxed and confident

1 Strongly disagree **2** Mildly disagree **3** Neither agree/disagree **4** Mildly agree **5** Strongly agree

9) If I appear nervous (for example, I blush or shake), others will see me as weak

1 Strongly disagree **2** Mildly disagree **3** Neither agree/disagree **4** Mildly agree **5** Strongly agree

Appendix M

Task Selection Sign-Up Sheet

You were selected because of a significant score on a social anxiety measure at mass screening. As part of our study, we are trying to **increase awareness of social anxiety**. To achieve this, we have created a **"Social Anxiety Awareness"** Facebook page.

Please choose one or more of the following tasks that you can commit to in order to assist with our goal. The more tasks you select to do the better! After actually completing any task, you'll be entered into a raffle for a $125 Amazon Gift Card, and will receive an extra ticket per each task you complete!

Here are ways you can get involved! Please select and circle the numbered tasks you plan to complete! You will have 24 hours to complete these tasks in order to be receive tickets. You will soon be reminded of the tasks via email and asked to provide proof that you completed the task/s through "screenshots," emailed pictures, or you can arrange a time to show us proof in person.

- 1) "Like" our "social anxiety awareness page" to build up the "likes" on our page **(1 ticket)**
- 2) Select three friends to invite to the Social Anxiety Awareness page from the "Invite your friends to like this page." **(2 tickets)**
- 3) Post a video or an article related to social anxiety on your own FB page, whether informative or humorous. **(3 tickets)**
- 4) Post a status update about a socially uncomfortable/awkward experience you've had. **(4 tickets)**
- 5) Post a video or article on your own FB page, whether informative or humorous but note and acknowledge that it applies to you by adding, "I can relate to this," or "Ha, I can relate to this." **(5 tickets)**
- 6) Record a brief, personal video about your experience with social anxiety for 1-3 minutes and allow us to use it as part of an educational campaign at Hofstra for incoming freshmen that involves a "video mashup" of different personal anecdotes. **(6 tickets)**
- 7) "Share" the Social Anxiety Awareness Page on your own timeline. **(7 tickets)**
- 8) Complete #6 and post your video to our Social Anxiety Awareness page **(8 tickets)**

Appendix N

Email Confirmation Template

Email to participants at follow-up from socialanxietyawareness@gmail.com:

Hi _____,

Today, you participated in a study on social anxiety. You read educational materials about social anxiety and watched some online clips. **Please reflect on the video clips you watched.**

In order to help support our social anxiety awareness campaign, you committed to the following tasks:

1.

2.

3.

We would really appreciate if you performed your selected tasks as soon as possible, within the next 24 hours.

Find us on Facebook at **Social Anxiety Awareness Page--**
https://www.facebook.com/pages/Social-Anxiety-Awareness-Page/609966065723048

If you engage in any of the tasks you committed to, you will be entered into a raffle of a $125 Amazon gift card.

You can provide evidence of your completed tasks by

- Emailing us images, "screenshots", or scanned photos, to confirm you completed your task (socialanxietyawareness@gmail.com)
- Proof on the Social Anxiety Awareness Page
- Arrange a time to show proof of your completion in person

After 24 hours of being contacted, you will be emailed debriefing information describing this study.

Please do not hesitate to contact us by email with any questions.

Social Anxiety Awareness Campaign

Appendix O

Debriefing Form

You were selected for this study because at pre-screening, you scored higher than average on a social anxiety measure. Nonetheless, your score on this measure does not imply that your social anxiety leads to meaningful impairment in your life or impedes your ability to function. However, if you feel like social anxiety is distressing and/or impeding your ability to function and want to consider treatment, please see the information for the Saltzman Center below.

The overall goal of this research was to better understand social anxiety by investigating the relationship between social anxiety and humor. It is difficult to measure humor in a therapeutic setting because it is difficult to find materials that would be suitable to various types of people and problems. You were assigned to one of two groups a) a group with standard psychoeducational material about cognitive-behavioral therapy and social anxiety and the addition of psychoeducational video clips or b) a group with standard psychoeducational material about cognitive-behavioral therapy and social anxiety PLUS the addition of humorous video clips.

The goal was to determine whether it was possible to simulate a therapeutic experience and see whether humor materials "normalized" social anxiety or led to greater acceptance of symptoms. Further, we sought to determine whether increased acceptance of social anxiety would lead to higher levels of behavioral engagement, or willingness to commit to tasks related to revealing your social anxiety, and then actually following through with them. We ultimately sought to investigate whether inviting outside humorous sources into therapy can enhance therapy. The questionnaires you completed were intended to detect the effects of the materials on changes in thoughts and emotions.

Thank you for your participation in this study.

Final results will be sent to you via e-mail if you submit a request to socialanxietyawareness@gmail.com

If you have any questions about your participation in this study or about the study itself, please contact:

Rachel Ginsberg, MA
516 619 6582 or socialanxietyawareness@gmail.com
or
Dr. William Sanderson
516 463-5633 or William.C.Sanderson@hofstra.edu

If you are experiencing significant concerns about social anxiety and/or are suffering from significant emotional distress, please contact Hofstra University's Student Counseling Services at (516) 463-6791.

Appendix P

Psychoeducational Content Modules; Excerpted from *The Shyness & Social Anxiety Workbook* by Antony & Swinson (2008)

Please read the following materials with understanding, and answer the questions that follow.

Part I: What is Social Anxiety?

Social anxiety refers to nervousness or discomfort in social situations, usually because of fear about doing something embarrassing or foolish, making a bad impression, or being judged critically by others.

For many people, social anxiety is limited to certain types of social situations. For example, some people are very uncomfortable in formal work-related situations, like presentations and meetings, but are quite comfortable in more casual situations, like parties and socializing with friends. Others may show the exact opposite pattern, with formal work situations being easier than unstructured social gatherings. In fact, it's not unusual to hear of a celebrity who is quite comfortable performing in front of large audiences but who otherwise feels shy and nervous when interacting with people one-on-one or in small groups.

The intensity of social anxiety and the range of feared social situations vary from person to person. For example, some people experience fear that is fairly manageable, whereas others are completely overwhelmed by the intensity of their fear. For some people, the fear is limited to a single social situation (for example, using public restrooms, public speaking), whereas for others, the social anxiety occurs in almost all social situations.

The experience of social anxiety is related to a number of common personality styles and traits including *shyness, introversion,* and *perfectionism*. People who are shy often feel uncomfortable in certain social situations, particularly when they involve interacting with others or meeting new people. People who are introverted tend to be quieter and more withdrawn in social situations and may prefer being alone, compared with people who are extroverted or outgoing. Finally, the trait of perfectionism is associated with a tendency to hold overly high standards for oneself that are difficult or impossible to meet. Perfectionism can lead people to feel anxious in public for fear that other people will notice their "flaws" and judge them negatively.

Here are a few points to remember:

1. Anxiety and fear are normal emotions everyone experiences from time to time.
2. Anxiety and fear are time-limited. Even though they feel as though they may continue forever, they always decrease over time.
3. Anxiety and fear have a helpful function in that they prepare for future threats and protect you from danger. So, your goal should not be to rid yourself of *all* fear and anxiety. Rather, your goal should be to reduce your anxiety to a level that no longer interferes significantly with your life.

What is a social situation? A social situation is any situation in which you and other people are present. Social situations can include those that involve interacting with others (these are often referred to as *interpersonal* situations) or situations in which you are the focus of attention or might be noticed by others (these are often called *performance* situations).

How Does Social Anxiety Affect People's Lives?

Social anxiety can affect relationships, work and school, and other day-to-day activities. Here are some examples:

- Norm has gradually lost many of his friends over the years. For a while after finishing high school, he kept in touch with his closest friends. However, because of his anxiety, he often dreaded returning their calls and almost never accepted their invitations to get together. Eventually, his friends stopped calling him.

- Alison's roommate consistently plays loud music after midnight, making it impossible for her to sleep. Despite feeling very frustrated and angry, Alison avoids asking her roommate to turn down her music for fear that her words won't come out right or that her roommate will think she is an idiot.

- When talking to people whom she doesn't know well, Julia tends to speak very quietly, keep her distance, and avoid eye contact. As a result, people at work have started to leave her alone and they rarely invite her to lunch anymore.

- In the space below, record the ways in which social anxiety has affected your friendships or your life

_____

_____

_____

_____

<u>Question 1:</u> What was the topic of the material you read?

1. Panic Disorder
2. Social Anxiety
3. Food preferences
4. Claustrophobia

<u>When you are done, please tell assistant</u>: **"I am ready to move on to Video 1."**

Part II: Social Anxiety and Thinking

Strictly speaking, people don't react emotionally to the situations and events in their lives. Rather, they react to their beliefs and interpretations concerning these events and situations. In other words, given an identical situation, different people might have completely different emotional responses, depending on their beliefs about the situation. Consider the following example. Imagine that you have interviewed for a job and are waiting to hear about the outcome of the interview. You were told that you would hear within a week. Two weeks have passed, and you still haven't heard from anyone about whether you were selected for the position. How would you feel? What emotions would you be experiencing? Well, you might be nervous if you thought the lack of a call was a sign that you didn't get the job.

On the other hand, if you thought no call was a sign that decisions had not yet been made, you might feel more optimistic. You might be angry if you believed that the interviewer was treating you disrespectfully by not calling. Often our beliefs are accurate; however, sometimes our beliefs are exaggerated or incorrect. For example, some people who are socially anxious are quick to assume that another person doesn't like them just because he or she seems uninterested during a conversation. In reality, there are many reasons why a person might look uninterested when talking to you. Some of these include: The other person is not interested in the topic of the conversation but still likes you as an individual. The other person is hungry. The other person is in a hurry (for example, he or she is late for an appointment). The other person is tired. The other person is feeling sick or unwell. The other person is shy or socially anxious. The other person is thinking about something stressful that happened earlier in the day. The other person is worrying about something that is coming up. The other person is someone who generally doesn't enjoy conversations. The other person is someone who always looks somewhat uninterested, even when he or she is having a good time. You are incorrectly assuming that the other person is uninterested even though he or she is showing all the usual signs of interest. If you are anxious in social situations, the chances are that you are either interpreting the situations as threatening in some way or are predicting that something negative is likely to occur. The more often you experience social or performance anxiety, the more often you probably engage in this style of anxious thinking.

Social Anxiety and Behavior

The most common behavioral response to feeling anxious or frightened is to either avoid the anxiety-provoking situation completely or to do something else to reduce the anxiety as quickly as possible. The reason people engage in these behaviors is because they are very effective at reducing discomfort— in the short term. However, in the long term, these behaviors have the effect of maintaining fear and anxiety in social situations because they prevent people from learning that their anxiety -provoking predictions are unlikely to come true.

What kinds of social situations have you avoided?

_____

_____

Question #2:

Based on your reading, social anxiety affects your thoughts and behaviors:

1. True
2. False

When you are done, please say: "I am ready to move on to Video 2."

Part III: Cognitive Behavioral Therapy

Cognitive therapy focuses on situations where your beliefs, predictions, and interpretations are exaggerated when compared with the actual level of danger in the situation. People naturally tend to seek out and pay attention to information that confirms their beliefs. In the case of social anxiety, people pay more attention and give more weight to evidence that others are judging them negatively (such as a history of being teased in high school) than to evidence that contradicts the anxious beliefs (for instance, a history of very positive performance appraisals at work).

Cognitive therapy aims to help people to consider all the evidence before making any assumptions. Types of anxious thinking begins and persists when people make incorrect assumptions about what is likely to happen in a given situation, about the quality of their own performance, and about what other people are thinking of them. This section includes descriptions of some of the most common styles of thinking that often seem to play a role in social and performance anxiety. Note that there are additional examples of negative and exaggerated thinking that other authors have highlighted. In fact, even the various thinking styles on this list overlap to some extent.

Personalization
Personalization is the tendency to take more responsibility for a negative situation than you should, rather than acknowledging all of the different factors that may have contributed to the situation.

Examples of Personalization:

- At a friend's birthday party, I was talking to another guest and we quickly ran out of things to talk about very quickly. I think the conversation ended so fast because I am boring and can't think of things to say.
- I was in an elevator and a woman was looking at me. She was probably thinking that I looked strange.

Can you think of recent examples of times when you engaged in personalization? If so, list your own examples of personalization in the space below:

_____

_____

Selective Attention and Memory

Selective attention is the tendency to pay more attention to certain types of information than to other types. Selective memory is the tendency to remember certain types of information more easily than other types. As discussed earlier, people are more likely to attend to and remember information that is consistent with their beliefs.

Examples of Selective Attention and Memory

- Ignoring positive feedback from a teacher or boss (in other words, discounting positive feedback as if it doesn't matter), yet taking negative feedback very seriously
- Focusing on audience members who seem bored during your presentation and ignoring those in the crowd who appear to be enjoying your talk
- Focusing on the moment during a conversation when you stumbled over your words and lost your train of thought, while ignoring the fact that the rest of the conversation was fairly smooth.

Can you think of ways in which you selectively pay attention to events or information that confirm your anxious beliefs and selectively ignore information that is inconsistent with those beliefs?

In the space below, list examples of times when you have engaged in selective attention or memory:_____

_____

_____

<u>Question 3:</u> Personalization and selective attentive/memory are examples of biased thinking patterns that are common to social anxiety.

True

False

<u>When you are done, please say</u>: "I am ready to move on to Video 3.

Part IV. Cognitive Thinking Styles

Catastrophic Thinking

Catastrophic thinking (also known as catastrophizing) is the tendency to assume that if a negative event were to occur, it would be absolutely terrible and unmanageable. From time to time, we all make mistakes, offend others, or look foolish. One difference between people who are socially anxious and those who are not particularly anxious is how they deal with these unfortunate social events. People who have very little social anxiety are often able to say to themselves, "Who cares what this person thinks? I have the right to make a mistake from time to time." Or, "I feel sorry that I upset that person, but everyone puts their foot in it at times." In contrast, people who feel anxious around others are more likely to think, "It would be a disaster to have others think badly of me." Below are more examples of catastrophic thinking:

Examples of Catastrophic Thinking

- It would be terrible if my anxiety showed during my presentation.
- I would not be able to handle making a fool of myself.
- It would be terrible to be unable to think of things to say during my date on Saturday night.
- If someone shows signs of not liking me, it feels like the end of the world.
- It would be terrible to lose my train of thought during a presentation.
- It would be a disaster if I blushed while answering a question in class.

In the space below, list examples of times when you have catastrophized or exaggerated how bad a particular outcome would be if it actually were to occur:

_____

_____

All-or-Nothing Thinking

All-or-nothing thinking (also called black-and-white thinking) is the tendency to judge any performance that falls short of perfection as being completely unacceptable.
People who engage in this style of thinking tend to categorize their behavior as being either perfect or awful, without acknowledging all of the possibilities that lie between these two extremes. As with "should" statements, all-or-nothing thinking is associated with excessive perfectionism and a tendency to hold unrealistic standards. Following are several examples of all-or-nothing thinking:

Examples of All-or-Nothing Thinking:

- If I lose my train of thought even once, I will blow the entire presentation.
- Even one person thinking I look nervous is too many.
- If I don't get an A on my exam, my teacher will think I am stupid.
- Showing any signs of anxiety is almost as bad as falling completely apart.

In the space below, list examples of the times when you engaged in all-or-nothing thinking:

_____

_____

How to Identify Your Anxious Thoughts and Predictions

…Whenever you find yourself in an anxiety-provoking situation, try to identify the specific thoughts and beliefs that contribute to your discomfort. In most cases, you can identify your anxious predictions and assumptions by asking yourself a series of questions such as the following: What am I afraid will happen in this situation? What do I fear that the other person will think about me? What will happen if my anxious thoughts are true? Sometimes it may be difficult to pinpoint your fearful thoughts. Chances are that social anxiety has been a part of your life for so long that your negative thoughts are well-rehearsed, very quick, and almost automatic (like habits). Also, the fact that you probably avoid the situations you fear makes it that much more difficult to remember exactly what thoughts tend to occur when you are actually in the situation. If you have difficulty identifying your anxious beliefs, we suggest that you try to engage with the situations you fear and attempt to identify your assumptions and predictions while you are still in the situation…

A Summary Guide to Challenging Thoughts: Identify your anxious thoughts, predictions, and interpretations. Examine the validity of your anxious predictions. Are your predictions realistic? For example, will others really think _____ about you? Examine the validity of your catastrophic thoughts by asking the question, "So what if my anxious thoughts are true?" For example, "What if a few people in the audience really think my presentation is awful? How might I cope with that?"

<u>Question #4</u>: Based on your reading, "catastrophic thinking" refers to a tendency to generate thoughts that are:

Strongly positive

Strongly negative

Part V. Cognitive Behavioral Therapy: Exposure

Confronting Your Fears Through Exposure

Exposure to feared situations and feelings is a very powerful method of learning that avoidance is neither necessary nor helpful in the long run. By confronting your fears, you will discover that many of your anxiety-provoking beliefs and interpretations are untrue or exaggerated. In addition, your interpersonal skills will improve, as you will have more opportunities to practice various types of social interaction and performance. In other words, not only will you become more comfortable making small talk, giving speeches, or dealing with conflict situations, you will become more effective and competent at mastering these challenging situations.

Exposure to Social Situations vs. Feared Sensations

Situational exposure involves exposing oneself to situations that produce anxiety. Overcoming social anxiety almost always includes situational exposure as a component. In other words, to become more comfortable with public speaking, or lunching with your coworkers, you will need to practice these activities. Some people with social anxiety may also benefit from exposure to sensations. This form of exposure is sometimes called interoceptive exposure, and it involves practicing exercises that trigger particular physical sensations. For example, spinning in a chair can be used to induce dizziness, and running up and down the stairs will make your heart race. Exposure to sensations is useful for people who are fearful of experiencing uncomfortable physical feelings.

Practice in a Variety of Situations

Working on decreasing your fear in a particular social or performance situation will help you feel more comfortable in other social situations as well. This process is called *generalization,* this often occurs as a result of exposure. For example, if you learn to feel comfortable asking questions in class, some of that success may "spread' or generalize, to other situations, making it easier for you to speak up at meetings at work. However, generalization will not cause your success to spread to every situation. To get the most out of exposure, it's best to practice in a variety of different contexts and situations.

Choose Practices with Minimal Risk

Choose practices in which the likely consequences are minimal, except for a period of feeling anxious. For example, if you want to be more comfortable with the possibility of seeming foolish or being the center of attention, there are lots of safe practices that you can try (for example, walking around with your shirt inside out). There is no need to take unnecessary risks, such as telling your boss what a jerk he is.

Don't Fight Your Feelings: You have probably been trying to control your anxiety, to prevent it from occurring, and to get rid of it as soon as possible—no matter what the cost. By now, you have probably discovered that trying to control your emotions doesn't work. In fact, attempts to control your anxiety are likely to make it worse rather than better. When you can allow yourself to become anxious without fighting the feelings, eventually you will become much more comfortable in social and performance situations. This sounds contradictory, but it really works this way. Instead of fighting your feelings, just let them happen. Instead of evaluating your experiences (for example, "sweating in front of others is unacceptable"), accept them. When practicing exposure, you should observe your responses and experiences without evaluating them. Your fear will likely pass more quickly if you are not trying so hard to get rid of it.

Challenging Your Worst Fears

By repeatedly exposing yourself to anxiety-provoking situations, you will continue to challenge most of your deeply held beliefs concerning your ability to cope. Identically, exposure practices should be designed to test the validity of your anxious assumptions. For example, if you are afraid of saying something foolish during a conversation a party, it's not enough simple to attend parties. To more thoroughly challenge such an anxiety-provoking belief, you also would need to talk to other people at the party.

By having numerous conversations with others, eventually you will learn that most of what you say is not foolish at all. After reaching a certain level of comfort talking to other people at parties, the next step might be to practice saying something silly purposefully and to evaluate the consequences. This exercise would help to challenge your anxious beliefs. Chances are that even if you did say something foolish at a party, the consequences would be minimal. With this type of exposure practice, you would learn not only that you can engage in effective conversations with others, but also that even if you make a mistake from time to time, it doesn't really matter. Rather than dwelling on questions like "What if I make a mistake?" or "What if I draw attention to myself?" we suggest you try to answer these questions by purposefully making a mistake or purposefully drawing attention to your behavior. In all likelihood, you will discover that nothing terrible happens.

Can you think of any possible practices that might be relevant to your social anxiety that you could try?_____

_____

_____

<u>Question 5</u>: Based on your reading, "exposure" therapy involves:

Confronting and challenging your fears

Ignoring or pretending your fears don't exist

Appendix Q

Humorous Article

Taken from *The Onion* (satirical online newspaper)

Anxiety-Ridden Man Rightly Ashamed Of Every Single Thing He Does

'We Are All Silently Judging Him At Every Moment, Just As He Suspects,' Acquaintances Say

NEWS • Human Interest • News • ISSUE 48•18 • May 2, 2012

OAKLAND, CA—Friends and colleagues of copywriter Timothy Gibula confirmed Wednesday that the anxiety-ridden 36-year-old is right to feel ashamed of every single thing he does, considering that all his acquaintances are, exactly as he fears, actively judging him at all times.

Validating every feeling of remorse and social anxiety the man has ever felt, sources close to Gibula told reporters his perpetual anguish over his words and actions could not be more justified, as all of his missteps—ranging from minor lapses of politeness to his overall slightly disappointing career trajectory—are immediately perceived by those around him as evidence of his inadequacy as a human being.

"Tim's the kind of guy who is forever second-guessing his behavior, as if the people in his life are constantly scrutinizing every single move he makes, and he's completely correct about that—we are," said Paula Ramirez, a coworker who admitted she can barely look at Gibula without a medley of his most embarrassing moments replaying in her head. "Anytime he's been petrified at the thought of social interaction or obsessively reexamined something he's said, his fears have been entirely reasonable, given our nonstop monitoring of his behavior."

"In fact, no matter what else I have going on, I always find time to think about Tim, whether it's a tiny faux pas he's made or one of the major failures in his life," Ramirez continued. "I barely find time to do anything else, really."

Friends and colleagues said that, just as Gibula suspected, each and every one of them is able to precisely recall numerous shameful instances in his life, from his introducing himself to someone after having already met them once, to at least three occasions in which his zipper was left down after exiting the bathroom, to that one time at the office holiday party when Karen was waving goodbye and he went in for a hug instead.

In addition, hundreds of slight acquaintances who may have only encountered Gibula once or twice claimed they were able to draw clear conclusions about his entire personality from the fact that he still can't afford to drive anything better than a 2004 Hyundai Elantra, and that he's in his mid-30s and still not in any sort of long-term relationship.

"Sometimes if Tim's not around we'll all just spend an entire afternoon picking apart everything about him, whether it's his taste in clothing or his political opinions, which are inarticulate and vague at best," said Ted Staley, a friend who went on to mention that virtually any moment Gibula opens his mouth is a moment in which his whole character and reputation are on the line. "The other day someone pointed out that it looked like his hairline may have receded a bit, and we laughed about that for hours."

"My favorite part is getting to hear about a humiliating thing he did that I wasn't there to witness firsthand," Staley added. "It's important to me to be kept in the loop of how badly he's fucking up."

According to former classmates, even as a student Gibula was, justifiably, always feeling humiliated, and the stupid things he regrets having done in high school and hopes are long forgotten are in fact freshly remembered by all who know him.

"Others may try to convince themselves that, given all the time that has passed, no one could possibly recall every minute and embarrassing thing that happened years ago to someone else, but Tim clearly knows better," ninth-grade classmate Will Anderson said. "To be honest, those few times his mind has wandered back to that high school dance where he sat alone awkwardly as everyone paired off couldn't possibly match the number of times everyone else thinks about it. Hell, I haven't seen Tim in almost 20 years, and not a day goes by I don't think about that dance and what a loser he was."

At press time, every single person who has ever known Tim Gibula is laughing about the way he throws a ball.