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Treating Public Speaking Anxiety:
A Comparison of Exposure and Video Self-Modeling

By
Emily M. Bartholomay

A Thesis Submitted in Partial Fulfillment of the
Requirements for the Degree of
Master of Arts
In
Clinical Psychology

Minnesota State University, Mankato

Mankato, Minnesota

May, 2015

Treating Public Speaking Anxiety: A Comparison of Exposure and Video Self-Modeling

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This thesis has been examined and approved by the following members of the student's committee.

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Abstract

This study examined the relative effectiveness of VSM and exposure in treating public speaking anxiety in reducing anxiety with a college student. The study employed a single-subject A-B design with parametric variations. Two phases were utilized in this study: baseline (exposure therapy) and treatment (video self-modeling) with a one-month follow-up. Generalization probes were also employed to assess whether or not decreases in PSA would generalize to other settings. Results indicate a significant decrease in public speaking anxiety from both pre- to post-treatment as well as from baseline to exposure. However, these results may be specific to public speaking anxiety, as other forms of anxiety did not result in such decreases. Results from a post-treatment survey indicated that the participant felt that the treatment was beneficial in reducing public speaking anxiety.

Introduction

Social Anxiety Disorder

Overview. Social anxiety disorder (SAD) is one of the most common anxiety disorders, and it is characterized by an intense fear of social situations in which the individual may be judged by others (American Psychiatric Association, 2013). Social anxiety disorder affects approximately 7% of the United States population with onset typically occurring during adolescence. Many individuals "grow out" of the disorder, but, for those who do not, the disorder tends to be chronic and causes pervasive impairment. Individuals with SAD are at risk for decreased rates of workplace productivity, increased rates of unemployment and social isolation, and lower quality of life. Only about half of individuals suffering from social anxiety disorder seek treatment, and they generally experience life-long impact, such as comorbid affective disorders and other anxiety disorders.

There are multiple ways to develop social anxiety disorder. Operant conditioning theory suggests that individuals develop SAD due to predictable punishment after social behavior (e.g., experiencing bullying when trying to make new friends) or due to reinforcement after solitary behavior (e.g., reduce anxiety by sitting alone). Most individuals experience these consequences of behavior, but few go on to develop clinical levels of social anxiety. For some individuals, the experience may be very strong or, to use the term colloquially, traumatic. When an individual experiences this "traumatic" event, further behavioral consequences (i.e., reinforcement or punishment) may not be needed. Similarly, social learning theory posits that an individual will learn to be asocial by seeing someone else experience the situations mentioned above (Bandura, 1969).

Anxiety is generally maintained by the processes escape and avoidance, and someone who regularly avoids situations that make him uncomfortable can be differentially reinforcing himself to engage in solitary behaviors. Social anxiety may also be generalized to other types of anxiety. For example, many individuals who exhibit signs of SAD can go on to develop generalized anxiety disorder (Leary & Kowalski, 1995). On the other hand, an individual with SAD may discriminate his experiences to only being afraid of performing in front of others. This performance-only type of social anxiety is described in the DSM-5 as a social fear limited to performing (giving speeches, dancing, etc.) in front of others which may cause impairment in work or academic settings (APA, 2013).

Treatments. There is a multitude of treatment options, and among the most common type is biological medication. Selective serotonin reuptake inhibitors (SSRIs) are the most commonly used biological treatment for anxiety, and most patients seem to respond well to these drugs (Beidel & Turner, 2007). However, some patients may still fail to improve while taking these medications. For these unresponsive patients, alternatives such as benzodiazepines and monoamine oxidase inhibitors (MAOIs) are available although these drugs may be accompanied by severe side effects and limitations, including psychological and physical dependence and restrictive diet. Although biological interventions are highly effective for treating conditions, the effects of treatment do not tend to be longstanding. In fact, according to Beidel and Turner (2007), the effects of biological treatment do not persist beyond treatment termination.

Although biological treatments show some benefits, the majority of research has demonstrated the efficacy of behavioral and cognitive-behavioral treatments (Beidel & Turner, 2007). Simple exposure therapy seems to play a vital role in reducing social anxiety. Direct

experience seems to play the most important role in learning which supports the use of exposure in treatment (Bandura, 1977).

Cognitive restructuring, when paired with exposure therapy, is the basis for the class of treatments known as cognitive-behavioral therapy (CBT). According to Leary and Kowalski (1995), anxious cognitions are primary to social anxiety disorder. Thus, a cognitively-based disorder can seldom be treated by behavioral techniques alone. In fact, cognitive therapies are most commonly used for treating social anxiety disorder. Behaviorally-based treatments fall further behind in commonality after both cognitive therapies and social skills training. However, one theoretical orientation may not always be the most effective means of treatment. For example, cognitive restructuring, when paired with exposure therapy, provides numerous advantages over other forms of treatment, such as behavioral and biological, including higher quality of life, reduced social anxiety, and improved life satisfaction (Leary & Kowalski, 1995).

Some other forms of treatment may also show promise in the treatment of social anxiety disorder. There is support for the use of mindfulness training in combination with exposure therapy (Rubin, 2009). Social skills training, a largely behavioral intervention is also rather effective at reducing social anxiety, especially when it is used in combination with another technique (Beidel & Turner, 2007).

However, there is still some disagreement as to which form of therapy may be most effective for SAD. For example, Leary and Kowalski (1995) state that behavioral treatments do not sufficiently improve cognitions of individuals suffering with SAD. However, Beidel and Turner (2007) disagree. Beidel and Turner (2007) further state that exposure provides significant change in social anxiety that is not necessarily improved by implementing another aspect to treatment, such as cognitive restructuring.

Public Speaking Anxiety

Overview. Approximately 20% of people report an excessively high degree of anxiety when speaking in public (Leary & Kowalski, 1995). In college student populations, as many as 35% of people report at least a moderate need for assistance with public speaking anxiety (Bishop, Bauer, & Becker, 1998). These rates are even higher among individuals with SAD, with approximately 97 percent of people who report feeling distressed by public speaking (Beidel & Turner, 2007).

Although PSA and SAD have similar origins, research suggests that public speaking anxiety is distinct from social anxiety disorder, in that individuals who are apprehensive about public speaking may exhibit PSA while failing to endorse any other symptoms of social anxiety (Blöte, Kint, Miers, & Westenberg, 2009). Further supporting this notion, Blöte and colleagues (2009) found that individuals with PSA are more similar to non-anxious controls than to individuals with SAD in terms of overall anxiety. Although PSA is more commonly experienced by individuals with social anxiety disorder as compared to non-anxious individuals, individuals who are only experiencing impairment due to PSA are less likely to seek treatment. These individuals are less likely to seek treatment because the impairments due to PSA are less extensive than the impairments experienced by individuals with SAD.

There are many factors that may influence speech-anxious individuals that do not necessarily impact the general public in the same way. For example, research suggests that individuals with high levels of speech anxiety are more likely than individuals with lower levels of speech anxiety to be sensitive to facial expressions displayed by others (Dimberg & Thunberg, 2007). This finding plays a direct role in implementing a VSM treatment of speech anxiety. Audience facial characteristics can influence the performance of speakers. In order to reduce as

much influence as possible, audience members should maintain neutral facial expressions in order to avoid influencing the performer.

Measuring public speaking anxiety without the use of self-report measures can be complex. Though there are some tools that measure physiological aspects of PSA, there are few means for measuring behavioral representations of anxiety. Speech dysfluencies are common behavioral manifestations of social anxiety, and they can be measured through direct observation. Anxious individuals are more likely to stutter or have other verbal dysfluencies, repeat themselves, use verbal crutches, implement unnecessary pauses, have substandard memory, blush, and have overall poorer communication skills than non-anxious individuals (Leary & Kowalski, 1995). By using direct observation to measure these manifestations, researchers can better understand and track treatment outcomes.

Treatments. The treatment of PSA has been thoroughly addressed in the treatment outcome literature. Although a large proportion of the population reports speech anxiety as a concern, most people do not seek treatment (Leary & Kowalski, 1995). However, there are serious implications for not treating PSA, specifically in the college community. For example, many universities require students to take specific classes to develop their speech skills, and many upper-level courses require presentations. Individuals suffering from speech anxiety may face negative consequences including, but not limited to, poorer grades and embarrassment. Therefore, treating PSA is vital, and treatment should occur earlier in the lifespan in order to reduce negative outcomes.

Many of the treatments for PSA are similar to those common of social anxiety disorder. Specifically, behavior therapy and cognitive-behavior therapy are among the most common interventions. Exposure, a form of behavioral therapy is generally quite effective at reducing

anxiety, even when this treatment stands alone (i.e., without any cognitive restructuring; Richman, 1995). In order to extend the effects of treatment, Tsao and Craske (2000) suggest expanding the treatment schedule. This involves scheduling sessions further apart (e.g., 5 days, 7 days, 10 days) in order to reduce spontaneous recovery of PSA.

Social impact theory posits that speech anxiety can be explained by both social desirability and audience size (Beatty & Payne, 1983). Specifically, individuals are more likely to experience speech anxiety in the presence of a large audience and desire for social approval. Although an individual's desire for social approval cannot be directly modified as an independent variable, audience size can be controlled in order to reduce anxiety levels as much as possible.

Although there is some discord among researchers as to which type of therapy is most effective in treating PSA, Sefchick, (1987) found that cognitive behavioral therapy, an example of which is VSM, is more effective than both exposure therapy and cognitive restructuring on their own. Some other aspects that may enhance therapy are peer feedback, positive thinking, and skills training (Ayers, 1988; Hayes & Marshall, 1984; Lawm, Schwartz, Houlihan, & Cassisi, 1994).

Video Self-Modeling

Overview. Video self-modeling (VSM) is defined as, "the behavioral change that results from the observation of oneself on videotape that show only desired target behaviors" (Dowrick & Biggs, 1983, p. 105). The theoretical support for VSM lies in Bandura's social learning theory. Reciprocal determinism, the basis of social learning theory, posits that the individual's behavior influences the environment and that the environment influences the individual's behavior (Bandura, 1977). One key element of observational learning is the similarity between the model and the observer (Dowrick & Biggs, 1983). Because the model and observer are the same person,

VSM embodies the similarity between the model and observer, thus making the observer more likely to reproduce the desirable behaviors that the model originally produced.

According to Dowrick and Biggs (1983), self-modeling is an effective technique, but there are steps that researchers and clinicians should take when implementing VSM. The major concern to address in VSM is the use of edited video. Because having participants watch themselves make mistakes can be detrimental to the therapeutic process, videos should be edited to remove behavioral dysfluencies (e.g. stuttering, unnecessary pauses) and other unflattering physiological reactions (e.g. blushing, heavy breathing). The edited videos exemplify a major aspect of treatment of social anxiety disorder: cognitive change. By individuals observing only positive aspects of their performances and being unable to attend to negative aspects of behavior, which is a major maintaining factor in SAD, cognitive change is occurring (Beidel & Turner, 2007). However, it is important to have the video seem realistic so that the client does not lose trust (Dowrick & Biggs, 1983).

VSM has been used to treat an array of issues including enhancing appropriate verbal responses in children with autism, improving swimming in children with spina bifida, increasing verbal responding in a child with selective mutism, increasing math skills in general education classrooms, and increasing appropriate social behavior among children with developmental and behavior disorders (Dowrick & Dove, 1980; Hitchcock, Dowrick, & Prater, 2003). The results of these studies demonstrate that VSM can be used to treat a variety of issues. An advantage of this single-subject research is that individuals can be treated quickly with individual results composing the data.

History of Use with PSA. The use of VSM to treat public speaking anxiety is fairly new, and results of the research is mixed. Kruger (2013) failed to find significant decreases in self-

report anxiety between exposure and VSM conditions. Likewise, the results of behavioral manifestations of PSA were mixed with one participant showing significant decreases in speech dysfluencies while the results from the other participant demonstrated an increase in speech dysfluencies.

Contrary to Kruger' findings, Poppenga (1996) found significant decreases in self-report public speaking anxiety from baseline to treatment conditions. Poppenga found further support for VSM treatment through reductions in state anxiety and subjective discomfort. Results of behavioral manifestations of PSA were mixed, with some participants demonstrating improvement and other demonstrating stability or deterioration. Although the data show improvement from pre-treatment to post-treatment, it does not seem that VSM plays a role in the reductions. Rather, it seems as though exposure is the primary cause for reductions in self-report anxiety scores.

Rickards-Schlichting (2004) also found significant decreases in self-report speech anxiety from baseline to treatment phases. However, because this study employed an A-B design as opposed the multiple baseline design used by Kruger and Poppenga, there is serious threat to validity that need to be addressed. The A-B design fails to rule out the influence of history. Although the results of this study are not necessarily robust, a major advantage of this study is the population studied. Although most research on the topic of PSA involves young college students (e.g., Kruger and Poppenga), this study established generality by having participants who were in high school. By studying this population, Rickards-Schlichting established that VSM treatment of public speaking anxiety can successfully be generalized to younger populations. However, the question remains if this treatment can sufficiently be generalized to older populations.

Treatment targets of early VSM research included increasing appropriate classroom behaviors. More recently, VSM has been used to treat other, more complex tasks. VSM to treat public speaking anxiety is a growing area of interest, however, the studies done in this area tend to use college students recruited from their regular classrooms. Unfortunately, it is unclear whether VSM treatment of PSA is advantageous for other populations.

Method

Participants

Flyers were posted throughout the community advertising a free treatment for public speaking anxiety. Thus, participants were recruited from various locations throughout a Midwestern community. Interested individuals were instructed to contact the researchers with provided contact information and were invited to attend a screening session to determine if the individual met inclusion criteria for the study.

Individuals who were interested in treatment were administered the Personal Report of Confidence as a Speaker-Short Form (PRCS-12; Hook, Smith, & Valentiner, 2008) in an initial screening session. The PRCS-12 was used as the primary screening measure. Because there is no agreed upon cutoff score, a score in the 67th percentile (a score of 8 out of 12) was used to ensure that the individuals screened were truly suffering from public speaking anxiety.

Three individuals attended screening sessions and met inclusion criteria. However, two of the participants dropped out of the study for personal reasons, yielding a single participant. The participant was a 19-year-old female attending school at a mid-sized Midwestern university. She endorsed significant public speaking anxiety, scoring a 10 out of 12 on the PRCS in the screening session.

Instruments

At the first and final sessions, the Social Interaction Anxiety Scale (SIAS) was administered. The SIAS is a 19-item self-report scale that measures social anxiety. Two of the items on this scale are reverse coded. This scale was developed by Mattick and Clarke (1998) by combining social anxiety inventories and newly created items based on information obtained from clinical interviews with individuals with SAD. The most predictive 19 items from the original 164 items were selected for use. The SIAS demonstrates high internal consistency ($\alpha=.90$) and fair convergent validity ($r = .41-.72$; Brown et al., 1997; Osman, Gutierrez, Barrios, Kopper, & Chiros, 1998). Sample items include, "I am tense mixing in a group," and "I find it difficult to disagree with another's point of view."

At each session, the PRCS-12 was administered. The PRCS-12 is a 12-item self-report measure that assesses speech anxiety. The current version of this scale, developed by Hook, Smith, and Valentiner (2008), was derived from the 30-item scale to include the 12 most predictive items. The PRCS-12 demonstrates good internal reliability ($\alpha=.85$) and fair convergent validity ($r = .15-.54$; Hook, Smith, & Valentiner, 2008). Sample questions include, "While preparing a speech I am in a constant state of anxiety," and "My thoughts become confused and jumbled when I speak before an audience."

The Subjective Units of Discomfort Scale (SUDS; Shapiro, 1995) was completed immediately prior to each speech. The SUDS is a short scale that measures an individual's self-report distress. SUDS scores have been found to be significantly negatively correlated with patients' global assessment of functioning (GAF) scores, ($r = -0.439, p < .001$; Tanner, 2012). SUDS scores have also been found to be related to MMPI scores, showing a significant relationship between SUDS and the neurotic index of the MMPI ($r = 0.366, p < .01$). The SUDS

has also been found to effectively track treatment outcomes, with results demonstrating reduction in SUDS scores after 3 months of psychotherapy ($t = -4.686, p < .001$; Tanner, 2012).

Direct observation was used to record speech dysfluencies during each session. Although the literature suggests using momentary time sampling, some of the behaviors measured relied upon duration measures. As a result, momentary time sampling was considered inappropriate, so partial interval recording was used to measure speech anxiety. Behaviors indicative of speech anxiety are presented in Table 1. Approximately 30 percent of observations were rated by two observers in order to assess inter-observer agreement. Using partial interval agreement, inter-observer agreement was moderate, with an agreement rate of 86.2%.

In order to address the participant's perception of treatment, a short self-report survey was given at the final session of treatment. This questionnaire included items to assess perception and utility of treatment and any variables that may have served as anxiety-inducing or anxiety-reducing confound (See Appendix A).

Design

An A-B design with parametric variations was utilized in this study, with "A" indicating baseline or exposure therapy and "B" indicating treatment or video-self modeling. Because VSM is a type of learning, a withdrawal design would not be appropriate for determining the effects of the intervention. During the baseline phase, the participant first completed the PRCS and SUDS. Upon completion of these measures, the participant was allowed five minutes to review a pre-written speech. After the five minute review period, the participant performed a 6-8 minute videotaped pre-written speech that was randomly selected from a speech bank. The participant was allowed the transcript and any notes she wrote during her speeches. Speech topics were over a range of general knowledge topics such as fast food consumption, tourist attractions, and social

networking. Speeches were recorded using a Canon Power Shot ELPH 300 HS digital camera. These video recordings were used for direct observation analysis and were edited as part of the VSM treatment package. Immediately after performing the speeches, the participant was reminded of his/her right to withdraw from treatment. In addition, a debriefing session was conducted in order to alleviate any temporary anxiety that the participant may be experiencing. Imagery training and progressive muscle relaxation were implemented as a part of the debriefing sessions.

The only change from baseline to treatment phase was that, in the treatment phase, the participant watched an edited videotape of the speech performed in the last session prior to completing self-report anxiety measures. Speeches were edited with the software CyberLink PowerDirector, in order to remove any speech dysfluencies. Speech dysfluencies removed are listed in Table 1. These videos were between 2-5 minutes, as suggested by Dowrick and Biggs (1983).

In order to test generalization, only the researcher was present for speeches. However, for two sessions, a larger audience, ranging from three to four people served as probes in order to ensure that treatment was able to generalize to a different audience. To further examine generalization, a follow-up session was conducted one month after treatment completion.

Hypotheses

The major question in this area of research is whether or not exposure and VSM effectively treat anxiety. Within this question, there are five hypotheses that were tested to answer this question.

Hypothesis 1. Participants' Social Interaction Anxiety Scale scores will decrease from pre-treatment to post-treatment. This hypothesis will be used to determine if the combination of

treatments (exposure and VSM) effectively reduce social anxiety, which is commonly associated with public speaking anxiety.

Hypothesis 2. Participants' Personal Report of Confidence as a Speaker scores will decrease from pre-treatment to post-treatment. The purpose of this hypothesis is to determine if the combination of treatments effectively reduce public speaking anxiety.

Hypothesis 3. Participants' Personal Report of Confidence as a Speaker scores will be significantly lower in the treatment (VSM) phase than in the baseline (exposure) phase. This hypothesis is being used to verify the effectiveness of VSM at treating public speaking anxiety.

Hypothesis 4. Participants' Subjective Units of Discomfort Scale scores will be significantly lower in the treatment (VSM) phase than in the baseline (exposure) phase. The issue of concern with this hypothesis is if VSM is more effective than exposure at reducing anxiety levels immediately prior to giving speeches.

Hypothesis 5. Participants' direct observation scores (intervals indicative of PSA) will be significantly lower in the treatment (VSM) phase than in the baseline (exposure) phase. The purpose of this hypothesis is to determine if VSM is more effective than exposure in reducing behavioral manifestations of anxiety.

Results

Overall, results indicate that the treatments were effective at reducing self-reported public speaking anxiety. However, results regarding other forms of anxiety (e.g., social and momentary distress) were mixed. A more detailed description of the results are presented below.

Social Interaction Anxiety Scale

Prior to treatment, the participant endorsed a score of 25 out of 95 on the SIAS, suggesting the lack of presence of social anxiety disorder. At post-treatment, the participant

again endorsed a score of 25. This lack of change indicates that the treatment was unsuccessful at treating PSA, failing to provide support for hypothesis 1.

Personal Report of Confidence as a Speaker

Prior to treatment, the participant endorsed a score of 8 out of 12 on the PRCS. At post-treatment, the participant endorsed 4 out of the 12 items on the PRCS. This 50% decrease, which is the benchmark for clinically significant symptom reduction, indicates a significant decrease in PSA from pre- to post- treatment (Palermo, 2012). Thus, this decrease provides support for hypothesis 2. VSM did appear to be effective at reducing public speaking anxiety beyond the effects of exposure alone. These reductions suggest that the treatment was fairly effective, with PND (points of non-overlapping data) = 71.4%, providing support for hypothesis 3 (Scruggs, Mastropieri, Cook, & Escobar, 1986). These results are maintained, as suggested by results of the follow-up session. These results are presented in Figure 1.

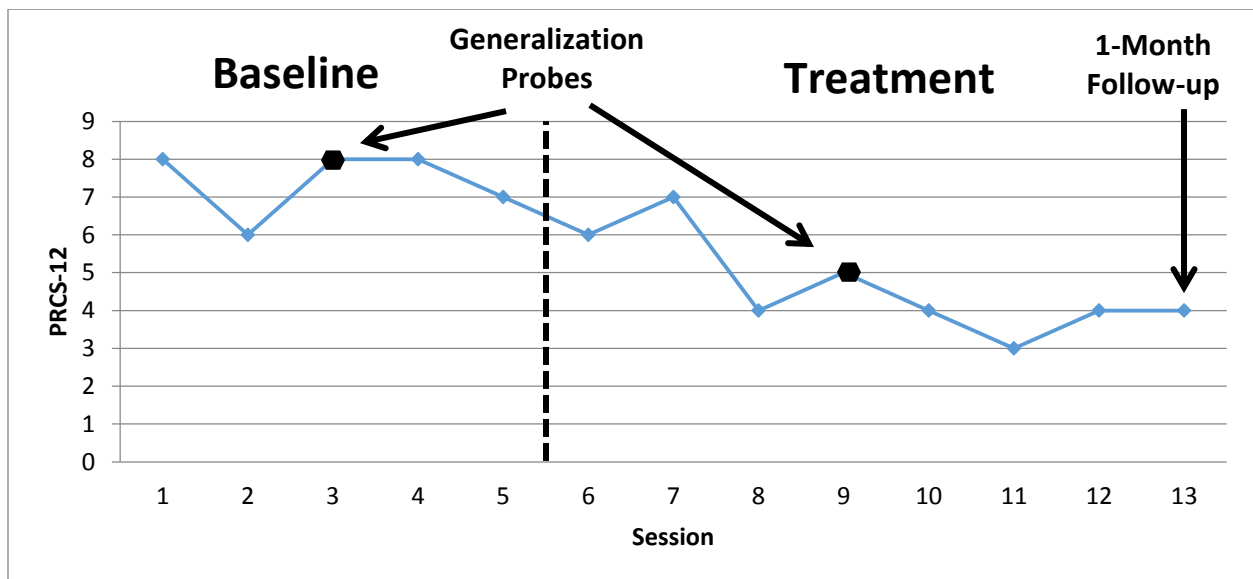


Figure 1. Participant scores on the Personal Report of Confidence as a Speaker.

Subjective Units of Discomfort Scale

VSM did not appear to be effective at reducing discomfort associated with public speaking anxiety. Statistical results suggest that this treatment was unreliable at reducing SUDS score, with PND = 14.2 percent. Although there is a decrease in SUDS scores and this decrease is maintained, these results fail to support hypothesis 4. These results are presented in Figure 2.

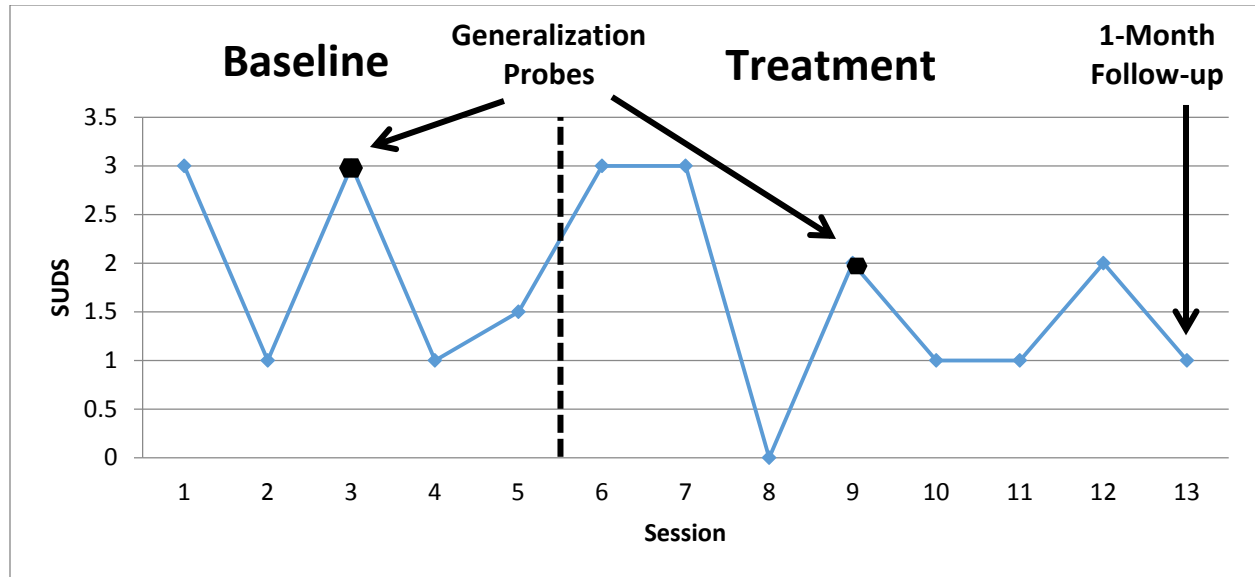


Figure 2. Participant scores on the Subjective Units of Discomfort Scale.

Direct Observation

Treatment was ineffective at reducing behavioral manifestations of public speaking anxiety, with PND = 0.0%, failing to support hypothesis 5. In addition, these results are maintained, as indicated by the follow-up session (See Figure 3).

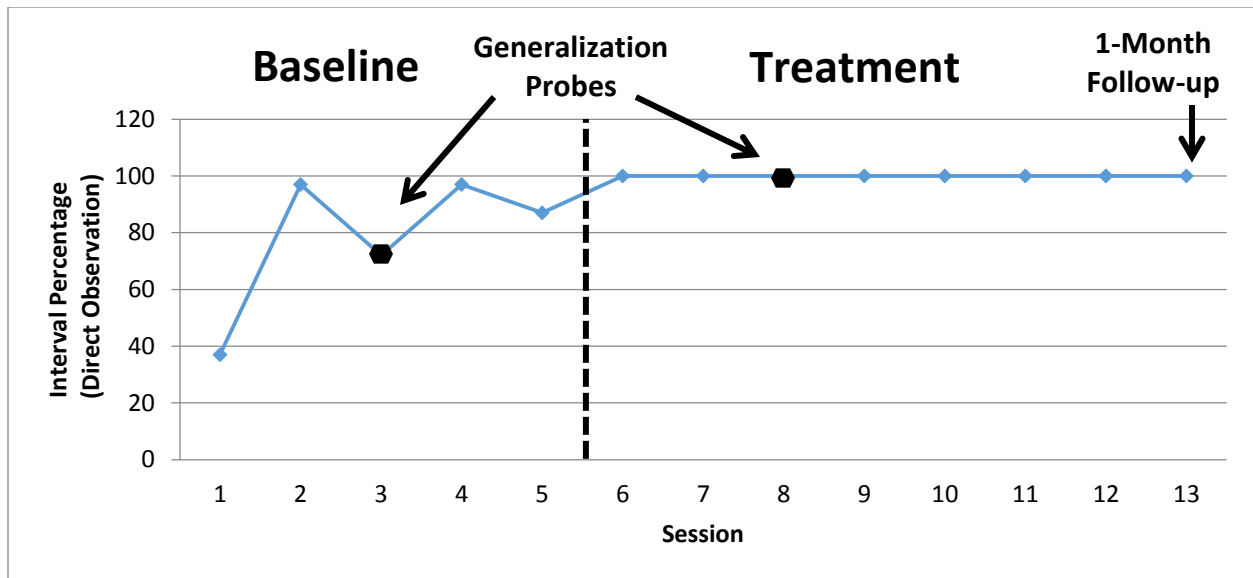


Figure 3. Participant percentage of intervals indicative of anxiety as measured by direct observation.

Perception of Treatment

The participant indicated that the treatment was effective at reducing public speaking anxiety while also increasing participant confidence while giving speeches. In addition, the participant indicated that she would recommend the treatment to others experiencing public speaking anxiety. Overall, the participant's satisfaction with treatment was high which may have increased the effectiveness of treatment in general.

In addition, a secondary purpose of the perception of treatment survey was to measure any variables that may be influencing treatment outcomes. The participant indicated that there were no other factors that had influenced treatment outcomes. However, the participant did indicate that she had given a speech for a class (prior to session 8), and reductions in anxiety are apparent (see Figures 1 and 2).

Discussion

Results of this study suggest that public speaking anxiety may be treated with both behavioral and cognitive-behavioral interventions. In addition, results indicate that including cognitive change provides added benefits in treatment that were unlikely to occur from exposure alone. In addition, results were maintained at a one-month follow-up, suggesting that treatment provides long-term decreases in public speaking anxiety. However, these results are specific to public speaking anxiety as the only outcome measure that indicated decreases was the PRCS. Overall, the participant's satisfaction with treatment was high, suggesting that this treatment should be used in the future to treat individuals who experience anxiety associated with giving speeches.

Limitations

This study has some noteworthy limitations. First, this study has a small sample size, and thus, the options for study design are limited. This study employed an A-B design that lacks the experimental control that would be provided in a multiple baseline design or a reversal design. However, a reversal design would not be appropriate given that the cognitive change of VSM is considered a type of learning. Furthermore, a multiple baseline design cannot be conducted with a single participant. Results could be enhanced through replication with other subjects over time.

Another major limitation of this study is the lack of sensitivity in some of the measures. The SUDS used in this study was an 11-point measure, and the participant scored within a small range on this measure (0-3). In addition, the PRCS is only a 12-point measure. Although the participant did exhibit a larger range of scores (3-10, including screening session), this measure is also fairly insensitive to change.

The debriefing session conducted at the end of each of session may have influenced results. Since relaxation skills were taught in this session, the participants may have utilized these techniques beyond the session which may have confounded the results. This may in fact be the case, as there is a notable decrease in PRCS and SUDS scores from the first to second session. Future research should be conducted without these debriefing sessions.

The major concern with this type of research is the trade-off between internal and external validity. Although an aim of this study was to capitalize on internal validity, this results in a lack of external validity that can result in data that are not meaningful. One area within this trade-off is the treatment setting. The participant gave speeches to a small audience, which is atypical of most presentation settings. Furthermore, because the speeches were pre-written, the participants were likely to read the speeches as opposed to performing the speeches. This may aid in explaining why the participant demonstrated higher levels of speech anxiety, as indicated through direct observation data, as treatment progressed.

Future Research

Future research should be done in a more naturalistic setting. For example, recording sessions in classroom setting in which individuals already give speeches may produce more meaningful results. Because public speaking anxiety is a clinical issue, it is important that results from research are able to be generalized. Thus, it is important for future research to highlight the potential external validity of research, while also considering the importance of internal validity.

Using video self-modeling to treat public speaking anxiety is a novel method of treatment, and only single-subject designs have been used to determine its effectiveness at this time. Future research should include larger, randomized controlled trials to determine treatment

effectiveness. By utilizing a larger sample size, statistical power will be increased, and the implications of such a study would be strengthened.

More sensitive measures should be used to track treatment outcomes. Although some measures did indicate changes in scores, these changes were limited. In order to produce more meaningful and significant results, more sensitive scales should be developed to measure public speaking anxiety.

Although this study does support the hypothesis that VSM provides additional benefits in comparison to exposure alone, research in this area is mixed. Furthermore, these results were only significant with one measure, the PRCS-12. More research needs to be conducted comparing VSM to other treatments in order to determine its effectiveness. In addition, other types of statistical analyses should be conducted to determine significance. For example, split middle or celeration line techniques should be used. These methods are able to test treatment effectiveness when considering the current course of behavior. This is an important consideration because with exposure therapy, the participant generally continues to improve even when another component is added to treatment. By using split middle or celeration line, it can be determined if the additional component provides benefits that would not be elicited by the initial treatment.

Table 1

Behaviors Indicative of Public Speaking Anxiety

Quivering voice

Speaking too fast

Speaking too softly

Stammering

Using verbal crutches (e.g. "um" "uh")

Extensive pauses (5 or more seconds)

Throat clearing

Heavy breathing (i.e. gasping)

Lack of eye contact (5 or more seconds)

Fidgeting

Motionlessness (10 or more seconds)

Swaying

Note. All of these behaviors were removed during the editing process except lack of eye contact.

Appendix A

Perception of Treatment Questionnaire

In order to better understand what this experience was like, I would like to ask you a few questions about your perception of treatment and some of your outside behaviors during treatment. Your responses will be kept confidential, so please answer as truthfully as possible. Please answer "yes" or "no" and provide explanations if you like.

1. The treatment was helpful.
2. The treatment was a waste of time.
3. The treatment helped reduced my public speaking anxiety.
4. I feel more comfortable speaking in public now than I did before treatment.
5. I would recommend this treatment to someone I knew who was experiencing public speaking anxiety.
6. Are you currently taking any medications to reduce anxiety?
If yes, how long have you been on medication?
7. Are you currently taking any other steps to reduce anxiety (e.g. counseling, self-help books, etc.)?
If yes, how long have you been seeking these services?
8. Has any major event in your life occurred over the course of treatment that may have impacted your anxiety level?
If yes, please briefly explain (e.g. moved to new house, recent breakup, etc.)

Appendix B

Informed Consent

Purpose

You are requested to participate in research supervised by Dr. Daniel Houlihan on the treatment of public speaking anxiety. Participants will be asked to complete approximately 12 sessions, each lasting between 15 and 30 minutes, totaling approximately 6 hours. The goal of this study is to determine which of two treatment options is more effective. If you have any questions about the research, please contact Dr. Daniel Houlihan at daniel.houlihan@mnsu.edu 507-389-6308 or Emily Bartholomay at emily.bartholomay@mnsu.edu 701-793-0692.

Procedures

Screening. During the initial screening session, participants will be asked to complete a questionnaire. Individuals falling below the screening criteria (a score of 7 or lower on the PRCS) will not be invited to further participate in the study. All participants whose scores are 8 or higher will be invited to participate in the study (12 sessions plus 2 follow up sessions). The screening session should take approximately 15 minutes.

Baseline. During the first phase of the study (approximately 5 sessions), participants will fill out a battery of questionnaires, review a pre-written speech for five minutes, and give the speech to a small audience. Participants will be allowed to speak with the speech transcript as well as any notes they made in the five-minute preparation period. Each speech in this phase will be video recorded to be analyzed by the co-investigator. In order to reduce anxiety levels after each treatment, participants will be immediately debriefed. To further reduce anxiety, the audience for each session will include no more than five total audience members. This phase of the study should take between 45 minutes and 1 hour and 45 minutes per participant.

Treatment. During the second phase of the study (approximately 7 sessions, plus follow-up sessions), participants will be subjected to the same procedures as during the first phase. The major change in the second phase is that participants will also be asked to watch an edited video recording of themselves giving the speech from the previous session. This video recording will be between two and five minutes with speech dysfluencies removed. The viewing of this video will occur immediately after filling out questionnaires and prior to reviewing and preparing the speech for the day's session. This phase of the study should take between 4 hours 15 minutes and 5 hours 15 minutes per participant.

Withdrawal

Participation is voluntary. You have the option to withdraw from this study at any time, including both during and between sessions. You may withdraw from the study by informing either Dr. Houlihan or Emily Bartholomay in person, by email, by telephone, or by simply not attending further sessions. Participants will also be allowed to withdraw from this study at any point during the session by holding up a colored index card to indicate their desire to withdraw from treatment.

Participation or nonparticipation will not impact your relationship with Minnesota State University, Mankato. If you have any questions about the treatment of human participants and Minnesota State University, Mankato, contact the IRB Administrator, Dr. Barry Ries, at 507-389-2321 or barry.ries@mnsu.edu.

Confidentiality

In order to protect participants' confidentiality, results will be published and files will be stored under identification numbers as opposed to names. Records (including video recordings which will be saved on DVDs) will be kept for three years in University Square 107 located at 1600 Warren St., Suite #6. After this time, all records will be destroyed by Dr. Houlihan. As a means to further protect participant confidentiality, only researchers involved in the study will have access to videotape recordings. More specifically, the primary and co-investigator and no more than two psychology students will be allowed access the videos. These students will be selected from the group of students involved in Dr. Houlihan's clinical psychology research team. In order to maintain participant confidentiality, all individuals involved in data collection/analysis and audience members will be required to sign a confidentiality agreement. The videos will not be used for any purpose other than for this study.

Risks and Benefits

The risks of participating in this survey are slightly more than are experienced in daily life. Participants are likely to experience temporarily elevated levels of anxiety due giving speeches and watching themselves perform these speeches on video recordings. In order to relieve these temporary increases in anxiety, a short debriefing session will occur after participants perform their speeches. Debriefing will include the co-investigator reminding participants of their right to withdraw at any time. Participants will also be given stress-management techniques to reduce this temporary anxiety. Participants will also engage in some of these techniques with the co-investigator.

The direct benefits for participating in this study are treatment of anxiety which may result in decreased levels of public speaking anxiety. Society may benefit from this research by decreased costs (fiscal and time) by reducing the amount of time spent in treatment by identifying the most effective treatment for public speaking anxiety.

By signing this form, you are consenting to participate in this study and that you are at least 18 years of age. A copy of this form will be made available to you.

MSU IRBNet ID# 647777

Date of MSU IRB approval: 10/30/2014

Name

Date

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