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Investigating Stuttering Attitude Change of Middle School Students in a Rural Appalachian School

Chelsea D. Kuhn

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Investigating Stuttering Attitude Change of Middle School Students in a Rural Appalachian School

Chelsea D. Kuhn

Thesis submitted
to the College of Education and Human Services at
West Virginia University

In partial fulfillment of the requirements for the degree of
Master of Science in Speech-Language Pathology

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ABSTRACT

Investigating Stuttering Attitude Change of Middle School Students in a Rural Appalachian School

Chelsea D. Kuhn

Effects of the *Stuttering: For Kids, By Kids* video on stuttering attitudes was investigated with middle school students in a rural Appalachian middle school in West Virginia. Participants completed the *Public Opinion Survey of Human Attributes-Stuttering (POSHA-S)* before (PRE) and immediately after watching the video (POST1) to measure attitude change following the intervention. The participants again completed the *POSHA-S* one month later (POST2) to determine the stability of their attitudes. Tabular and graphic comparisons were generated for each of the three administrations of the *POSHA-S*. For PRE versus POST1 and POST1 versus POST2 analyses, individual item and combined item ratings of the *POSHA-S* for all the conditions were compared using paired *t* tests for dependent samples with the Bonferroni correction. Results indicated minimal change after watching the video but indicated stability of middle school students' attitudes.

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INTRODUCTION

Middle school is a transition period in the lives of many adolescents and is a critical time in their development. Most adolescents develop a need to be accepted by their peers and thus begin participating in a complex social environment that is filled with cliques, crowds, and friends. They become part of these peer groups and feel a need to belong. Interactions among friends during early adolescence become more frequent, and their relationships are described as more intimate than the level of interactions among younger children (Furman & Buhrmester, 1992). Adolescent friendship groups heavily influence members' attitudes and behaviors (Rubin, Bukowski, & Parker, 1998). Research has shown that children are sensitive to their peers' communicative competence or incompetence (Rice & Hadley, 1991). Thus, individuals who do not meet their peers' expectations are susceptible to ostracism, rejection, bullying, teasing, and damage to their self-esteem (Wahl, Susan, Lax, Kaplan, & Zatina, 2012).

Attitudes Toward Stuttering

Stereotyping

Lass, Ruscello, Pannbacker, Schmitt, and Everly-Myers (1989) surveyed 81 speech-language pathologists (SLPs) and noted that they held many different stereotypes about people who stutter. The SLPs were asked to write down as many adjectives of people who stutter as they could describing four hypothetical people: an adult male who stutters, an adult female who stutters, an 8-year-old male who stutters, and an 8-year-old female who stutters. Important findings emerged from the traits listed by the participants. More adjectives were assigned to males than females who stutter. Also, the majority of adjectives describing people who stutter,

both male and female, were negative. Specifically, of all the adjectives listed (527), 70% were judged to be negative, 24% positive, and 6% neutral.

In a study by Evans, Healey, Kawai, & Rowland (2008), 64 middle school students viewed a video sample of a teen telling a joke at one of four stuttering frequencies (<1%, 5%, 10%, 14%). The students then rated the sample on 11-point Likert scale items that reflected their affective, behavioral, and cognitive perceptions of the peer who stuttered. The results revealed a relationship between stuttering frequency and categories of items. The affective statements “I feel comfortable listening to this boy” and “I would feel comfortable talking with this boy at school” were rated most positively by those students who viewed the <1% stuttering sample. The behavioral statement “This boy has smooth speech” was rated most negatively by those students who viewed the 14% stuttering sample, which was expected. An interesting finding from this study was that stuttering frequency as high as 14% did not significantly influence how comfortable the middle school students believed they would feel having the peer as a personal friend, including the peer in their group of friends, letting the peer speak for their group in a class presentation, and listening and talking with the peer.

Langevin, Packman, and Onslow (2009) investigated peer responses to preschoolers’ stuttering and whether specific stuttering characteristics caused a negative reaction among the children. After asking children to view videotaped recordings in an outdoor free play session of four preschoolers who stutter, the authors sought to determine how stuttering is viewed by peers, the limits it puts on the stutterers themselves, and the ability of stuttering children to communicate in social interactions. The authors judged peer responses as being negative or neutral-to-positive. The results indicated that between 71.4% and 100% of the preschool peers responses were judged to be neutral-to-positive. The negative responses consisted of peers

reacting with confusion or interrupting, mocking, and ignoring the stuttered utterances. The authors interpreted these results to suggest that stuttering clearly has social consequences for children who stutter, including problems in leading peers in play, resolving conflicts, and providing explanations.

In a mixed-method study, Franck, Jackson, Pimentel, and Greenwood (2003) asked 4th and 5th grade students to view one of two videotapes of a speaker reading a poem, one wherein the speaker stuttered, and the other with no stuttering. Utilizing a semantic differential bipolar adjective pair (Likert) scale to quantify the perceptions of the participants, Franck et al. (2003) found significant differences between the school-age children's perceptions of stutterers and nonstutterers. Negative perceptions regarding the stuttering video were observed both in the Likert scale ratings as well as in qualitative observations recorded by the examiners. Participants frequently laughed and whispered comments such as "He sounds funny." and "Why is he doing that?" while viewing the videotape with stuttering. Moreover, the pairs with the greatest statistical difference between fluent and stuttered ratings were all personality-related traits (e.g., brave–afraid, outgoing–shy, and confident–unsure). This is similar to findings obtained by Lass et al. (1989) where personality traits were among the most commonly listed traits to describe a person who stutters.

Panico and Sudholt (2009) examined the reactions of 3rd- to 5th-grade students after watching a video of a female stuttering at one of four frequencies (0%, 5%, 10%, or 15% percent syllables stuttered). The investigators used five Likert statements as well as three opened-ended questions as their measures. Interestingly, rather than focusing on the presence of stuttering, the children often made responses about a variety of other aspects of the child's speech in the video. Four cluster themes emerged from qualitative and quantitative results of this experiment, two

relating to the listeners' judgment and two relating to the speaker. The themes were speaker characteristics, speech characteristics, listener comfort, and listener comprehension. As expected, the percentage of negative comments increased with frequency of stuttering level while the percentage of positive comments decreased. These findings are consistent with the results of the Franck et al. (2003) study and provide important insights into how children perceive a child who stutters.

Özdemir, St. Louis, and Topbaş (2011) used the *Public Opinions of Human Attributes–Stuttering (POSHA–S)* (St. Louis, 2005, 2011) to examine attitudes toward stuttering which were compared among two different representative samples from one Turkish city. (The *POSHA–S* is described in detail in the Method section.) Three family generations (i.e., 6th grade schoolchildren, their parents, and their grandparents or adult relatives) as well as their neighbors were sampled utilizing a school-based, three-stage cluster probability sampling scheme. Their results indicated remarkably similar attitudes for stuttering of the children, parents, grandparents/adult relatives, and neighbors. Attitudes of the same family/neighbor units were slightly more similar than those from different family/neighbor units. These findings provide convincing evidence that family and neighborhood attitudes are important factors in determining children's attitudes toward stuttering.

Bullying

Bullying in schools is defined as the repeated exposure to negative actions by one or more students over time (Olweus, 1992). Blood and Blood (2004) showed that adolescents who stutter are at an increased risk of bullying and social isolation in school. Several researchers have noted that the frequency of bullying appears to peak in grades 6 to 8 (Arora, 1994; Dawkins,

1996; Nansel, et al., 2001; Olweus, 1997, 2003; Whitney & Smith, 1993). Children who stutter also have been found to have difficulty “fitting in” at school (Evans et al., 2008) and are subject to negative peer attitudes. Investigations of peer attitudes toward children who stutter have consistently shown that approximately one-fifth of 3rd- to 6th-grade students hold negative or very negative attitudes toward children who stutter (Langevin, 2009; Langevin & Hagler, 2004; Langevin, Kleitman, Packman, & Onslow, 2009). From these findings, it is reasonable to assume that children who stutter are susceptible and vulnerable to bullying by their peers in the mid-elementary school years.

Not surprisingly, people who stutter also fall victim to stereotyping. In their seminal 1970 study, Yairi and Williams determined that SLPs identified children who stutter as anxious, nervous, shy, quiet, and withdrawn, among other traits. Subsequent studies of SLPs yielded similar results (e.g., Cooper & Cooper, 1985; Woods & Williams, 1976). People who stutter also have been stereotyped in this manner by the general public (St. Louis, 2015; Özdemir et al., 2011; Silverman & Paynter, 1990), employers (Hurst & Cooper, 1983a), vocational rehabilitation counselors (Hurst & Cooper, 1983b), teachers (Yeakle & Cooper, 1986) (Lass et al., 1992), school administrators (Lass et al., 1994), and pediatricians (Yairi & Carrico, 1992). The negative personality traits attributed to stutterers may not be accurate, according to Bloodstein (2007); however, they are prevalent and consistent (St. Louis, 2015), creating a negative environment that people who stutter will encounter in their everyday lives. The presence of negative stereotypes has the potential to lead to poorer performance on tasks in school as well as compromised social interaction with peers (Schmader, Johns, & Forbes, 2008).

As noted, adolescents live with heightened importance of peer relationships. A study conducted by Van Borsel, Brepoels, and De Coene (2011) reported that, to some degree,

adolescents and young adults consider peers who stutter less attractive to the extent that they would be less likely to engage in a romantic relationship with them. On the contrary, studies by Blood, Blood, Tellis, and Gabel (2003) and Blood and Blood (2004) suggest that the majority of adolescents who stutter do not consider their fluency problem as a stigmatizing condition and do not believe their stuttering affects whether or not peers like them and want to be their friends.

Changing Attitudes

Speech-Language Pathologists and Speech-Language Pathology Students

The reviewed research has documented clearly that negative attitudes toward stuttering exist in the nonstuttering population. Compared to the large and growing evidence base that negative public attitudes toward stuttering exist, relatively few studies have addressed the next important step, “Can attitudes toward stuttering be changed?” Following is a review of most of the extant research efforts that have attempted to change such stuttering attitudes.

Reichel and St. Louis (2004) asked speech-language pathology (SLP) graduate students in fluency disorders courses at two universities, one constituting an experimental group and the other, a control group, to participate in an *emotional intelligence* (EI) curriculum module. The EI curriculum module was developed and covered numerous topics, including: the neurophysiology and neurobiology of emotions; the role of the autonomic nervous system in emotions; cognitive-emotional interactions; relations between emotions and memory; development of empathy and sympathy; awareness of one’s own emotions; ability to discern others’ emotions; individual differences in emotions; cultural influences on emotions; theoretical perspectives on emotions; specific emotions and feelings of anxiety/fear, anger, hostility, embarrassment, guilt, and shyness and their management in stuttering intervention; the role of emotions in stereotyping and

prejudice; and critical assessment of EI constructs. The module also included discussions of emotional competencies in SLPs, such as empathy, risk-taking, tolerance of diversity, flexibility, creativity, optimism, confidence, and persistence.

Reichel and St. Louis (2004) administered three questionnaires to the SLP students: the *Emotional Intelligence Scale (EIS)* (Schutee & Malouff, 1999), the *Public Opinion Survey of Human Attributes-Experimental Edition (POSHA-E2)* (St. Louis, 2012), and a “yes/no” adaptation of the Woods & Williams (1976) *25 Bipolar Adjective Scale (BAS)*. An open-ended written response to a questionnaire about emotional intelligence was also included. The results showed only a limited statistical association between the *EIS* and the *POSHA-E2*, suggesting that the emotional intelligence modules may not directly affect stuttering attitudes. However, a number of significant differences were shown for the *BAS* in the test group. All the adjective pairs moved in the direction of more “positive” and fewer “negatives” after the course. In addition, the comments from the open-ended questionnaire indicated that most of the participants were pleased with the module and felt that it could be helpful in their interactions with clients who stutter.

In a related study, Reichel and St. Louis (2007) developed another curriculum that targeted negative stereotyping toward stuttering in *multicultural and multinational* contexts with 29 graduate students enrolled in a graduate fluency disorders course. Again, their purpose was to improve students’ attitudes toward people who stutter and to enhance students’ interest in treating stuttering, but the focus of this investigation was to examine changes in negative stereotyping toward people who stutter upon crossing multicultural and multinational boundaries. The module focused especially on conceptualization of negative stereotyping in different cultural contexts, drawing heavily on discussions from a highly diverse student group in

the class. It also included information about stigma, prejudice, discrimination, as well as many current approaches to ameliorating these phenomena, such as through education and empathy. Again, using the *POSHA-E2* as a pre/post test measure, along with qualitative questionnaire data, results revealed that training in stigma and negative stereotyping can reduce negative attitudes towards people who stutter and that graduate students' interest in treating people who stutter can be increased. The data from both studies suggest that educational programs and initiatives directed at mitigating negative attitudes and/or increasing awareness of differences can assist in changing attitudes toward stuttering in SLP students.

Recently, Junuzović-Žunić et al. (2015) reported that students' attitudes in undergraduate and graduate fluency disorders classes in the United States and Bosnia & Herzegovina improved similarly following participation in fluency disorders coursework as measured by the *POSHA-S* Overall Stuttering Scores (St. Louis, 2011). Junuzović-Žunić et al.'s data included a small subset of respondents reported by Reichel and St. Louis (2007). The scores improved by 12, 15, and 11 units across studies. Pre- versus posttest results of each class reached statistically significant levels from 7% to 13% of the *POSHA-S* ratings. The authors found that, depending on the students' particular setting or coursework, their self reactions, beliefs, or both were amendable to change following the coursework. Results from this study provide encouraging support for mitigating stuttering attitudes.

Using a pre- versus posttest study design, a recent study by Gottwald, et al. (2011) involved 10 SLPs, 18 undergraduate SLP students, and 10 teachers completing the *POSHA-S* before and after they watched an 11-minute DVD featuring individuals who shared their experiences with stuttering. The purpose of this study was to learn about attitudes and beliefs about stuttering held by SLP students, teachers, and SLPs and to determine and identify if

attitudes and beliefs about stuttering changed following exposure to oral histories of people who stutter. Positive changes were most notable in the teachers, specifically in the areas of beliefs, causes, and how to react when speaking with a person who stutters. On the other hand, SLPs demonstrated very little change overall from their pre- to post- test measurements, likely due to very positive attitudes beforehand and a resultant “ceiling effect.” Undergraduate SLP students demonstrated the largest positive change in their beliefs and how to interact with a person who stutters. Results of the study suggested that brief exposure to oral histories of people who stutter improves attitudes, notably among those who may not be familiar with fluency disorders, such as teachers.

Using a different measure, the *Clinicians Attitudes Towards Stuttering (CATS)* inventory (Cooper, 1975), Snyder (2001) asked SLP graduate student clinicians to complete the inventory before and after they viewed either a shortened version of the documentary *Speaking of Courage* (Bondarenko, 1992a) or a clinic video entitled *Effects of Altered Auditory Feedback at Fast and Normal Speaking Rates* (Keith & Kuhn, 1996). The Bondarenko film was intended to evoke primarily an emotional response to stuttering while the other video was intended to provide a factual account of stuttering change. Only one item on the *CATS* inventory changed significantly after clinicians watched the *Speaking of Courage* documentary (Bondarenko, 1992a) while three items significantly changed after watching the Keith and Kuhn video: “Chances are that most stuttering is the result of multiple coexisting factors” (changing from moderately agree to undecided), “There is no such thing as a ‘primary stutterer’ (a stutterer who stutters but isn’t aware of it)” (shifting from undecided to moderately disagree), and “Stuttering behaviors are relatively easy to modify” (changing from undecided to moderately agree). These results reveal that both documentaries had only a subtle impact on the clinician’s attitudes towards stuttering.

To explain his findings, Snyder hypothesized that the lack of many differences could be related to the *CATS* Inventory's questionable validity since it was developed to measure SLPs' knowledge and beliefs about stuttering. Snyder raised the possibility that the *CATS* may not be sensitive to attitude change at all.

Leahy (1994) evaluated attitude change of 17 university SLP students who were studied over a one-year span. The purpose was to change their negative stereotypes regarding stuttering. Seven students were assigned stuttering clients, five of whom attended group therapy and one individual session weekly, while the other two attended individual sessions only. The remaining ten students were involved in attending lectures, observing the group sessions, and participating in student tutorials. These tutorials assisted the students in exploring their own personal theories, and each student was asked to simulate stuttering (pseudo-stuttering), a procedure similar to that employed by Reichel and St. Louis (2004). At the end of the therapy period in Leahy's study, the students completed a semantic differential scale consisting of 11 of 25 attributes in the Woods and Williams (1976) scale. The results generally revealed interesting positive trends; however, there were no statistical significant differences between the pre- versus post-therapy measures. Qualitative feedback from the students indicated that their understanding of stuttering was greatly improved by participating in the personal experiments (e.g., pseudo-stuttering). It should be noted, however, that the attributes of calm/nervous, relaxed/tense, and talkative/reticent changed in a negative direction, calling into question the ability of real or simulated experience with stuttering to improve attitudes.

Mixed-Major Undergraduate Students

Mayo, Mayo, Gentry, and Hildebrandt (2008) found that following watching the documentary, *Speaking of Courage*, undergraduate students attitudes shifted significantly in a

positive direction using the 25-item Woods and Williams (1976) semantic differential scale. Specifically, the participants' mean response to the cooperative-uncooperative, pleasant-unpleasant, intelligent-dull, and emotional-bland adjective pairs all shifted from "fairly" to "quite" in the direction of the stronger/more positive adjective. In addition, their responses to the open-guarded, shy-bold, and daring-hesitant adjective pairs positively shifted from "fairly guarded" to "neutral", "quite shy" to "fairly shy", and "neutral" to "fairly daring".

Teachers or Education Students

Abdalla and St. Louis (2014) explored the effect of an educational documentary video that presented factual and emotional aspects of stuttering on changing attitudes toward stuttering of 99 (48 control, 51 experimental) education majors (pre-service) and 103 (49 control, 54 experimental) practicing (in-service) public school teachers in Kuwait. All participants completed 22 items from an Arabic translation of an adapted version of the *POSHA-S* and 17 additional items pre- and post-treatment. Pretreatment comparisons between the control and experimental groups showed that they did not differ on their attitudes toward stuttering. Also, as would be predicted, the post-treatment results for the control group were not different from their pre-treatment ratings. However, there was a significant shift in attitudes from pre- to post-treatment observed in the experimental group of education students on 10 *POSHA-S* items and eight added items. Unexpectedly, however, for the practicing teachers, only one of the 39 items yielded a between-group statistical difference, i.e., the control teachers were less likely to feel comfortable (30.8%) while speaking with a person who stutters than the experimental teachers (69.2%). The results from the pre-service teachers in this study indicate that it is possible to modify positively attitudes of non-speech-language pathology college students by using an

educational documentary video.

High School Students

Similar to the Snyder (2011) study that used the *Speaking of Courage* film, McGee, Kalinowski, and Stuart (1996) used its companion documentary videotape, *Voices to Remember* (Bondarenko, 1992b), to attempt to change 36 high school students' perceptions of a high school male who stutters on the Woods and Williams (1976) semantic differential scale. First, they were asked to rate both a hypothetical normal high school male and a hypothetical high school male who stutters. Next, the participants viewed the videotape *Voices to Remember*, and following the presentation, they were asked again to complete another set of two semantic differential scales. Contrary to expectations, participants held stronger negative stereotypes toward stuttering after viewing the videotape. Importantly, the study found no significant differences on any of the 25 scale items for pre- versus post-viewing ratings of the hypothetical normal high school male. These findings, similar to the Snyder (2011) study, suggest that that a videotape by itself may not be an effective means to improve attitudes towards an individual who stutters.

Flynn and St. Louis (2011) also examined change in attitudes of high school students. The students were asked to complete a modified version of the *POSHA-S* before and after either watching an edited video entitled *True Life: I Stutter* or listening to and participating in a presentation about stuttering by the first author, himself a moderate-to-severe stutterer. The latter group of students who watched the video also listened to a shortened presentation about stuttering after completing the posttest *POSHA-S*. Flynn and St. Louis documented a number of positive attitude changes on the *POSHA-S*. Of the 67 comparisons for the “oral” condition, 59 changed in a positive direction with 22 being statistically significant. The largest changes related

to reductions in the belief that stutterers are nervous or excitable and that learning/habits or trying to think or talk too fast were possible causes of stuttering. Positive changes also occurred for the video condition. These ratings were not as large as in the oral condition, but 19 of the 67 comparisons were statistically significant. In addition, the shortened oral presentation that was added in the video + oral condition proved to have further positive changes in the attitudes of the high school students. The study is noteworthy in that it affirmed that attitudes of high schoolers toward stuttering can be improved.

Middle School Students

No known study has attempted to change middle school students' attitudes toward stuttering. In a related area of attitudes towards mental illness, however, Watson, Otey, Westbrook, Gardner, and Lamb (2004) asked middle school students to participate in an educational program called *The Science of Mental Illness*. The students completed *The Knowledge Test* (Watson et al., 2004), which included 13 true or false (or "not sure") items, and a set of five open-ended questions that were developed specifically for the study and reflected the learning objectives of the curriculum. Attitudes were measured with the *r-AQ*, a short form of the *Attribution Questionnaire* (Corrigan, Markowitz, Watson, Rowan, & Kubiak 2003) modified for use with children as a means to evaluate the impact of the program on both knowledge and stigma-related attitudes. The curriculum improved the students' knowledge about mental illness and produced small—but significant—improvements in attitudes at posttest. It was most effective in reducing negative attitudes among those students who, prior to the curriculum, held the most stigmatizing attitudes at pretest. This study suggests that providing educational

information about a particular disorder may be able to change attitudes of middle school students in the desired direction.

Summary

Abdalla (2015) reviewed all of the above investigations relating to changing stuttering attitudes. The studies attempted to improve attitudes toward stuttering in a considerably diverse range of populations, including, SLPs (Gottwald et al., 2011), graduate level SLP students (Junuzović-Žunić et al., 2015; Reichel & St. Louis, 2004; Reichel et al., 2007; Snyder 2001), undergraduate level SLP students (Gottwald et al., 2011; Junuzović-Žunić et al., 2015; Leahy, 1994), undergraduate students in other majors (Mayo et al., 2008), teachers (Abdalla et al., 2014; Gottwald et al., 2011), education students (Abdalla & St. Louis, 2014), and high school students (Flynn et al., 2011; McGee et al., 1996). The results of these studies are mixed, with six documenting a positive impact on the changes in attitude (Abdalla & St. Louis, 2014; Flynn & St. Louis, 2011; Gottwald et al., 2011; Junuzović-Žunić et al., 2015; Mayo, 2008; Reichel & St. Louis, 2007), three with little to no positive change (Leahy, 1994; Reichel & St. Louis, 2004; Snyder, 2001), and with one actually documenting a negative change of attitudes toward stuttering (McGee et al., 1996).

It is clear that there have been many dissimilar outcomes as well as many significant positive shifts in attitudes. Possible explanations for these differing outcomes have been advanced and include differences in the appropriateness of measures used, populations studied, video stimuli or stimulus used, and elapsed time following the stimuli to complete the post survey (Abdalla, 2015).

PURPOSE

It is apparent from the foregoing review that there is very little research on the attitudes of middle school students towards stuttering and, to the author's knowledge, none that explores the extent to which middle school students' stuttering-related attitudes can be changed. Data regarding this could help us further understand these early adolescents' perceptions since this is a critical period in their lives. Since they are young, it would seem reasonable that attitudes of early adolescents may adapt to change more easily than adults; however, this hypothesis needs empirical evidence to support it. Modifying attitudes would appear to be particularly important at this age because children who stutter are likely to be teased and bullied by their peers. If the views of normally speaking middle school students toward stuttering can be improved, then the attitude environment of their stuttering peers could thereby be improved. Therefore, the purpose of this investigation is to explore attitude change toward stuttering in middle school students. Specifically, it asks three experimental questions. First, to what extent are middle school students' stuttering attitudes similar to or different from the attitudes of adults? Second, can attitudes of middle school students toward stuttering be improved? Third, to what extent are these changes in attitudes maintained?

METHOD

Questionnaire

The foregoing review of the literature showed that several instruments have been used to measure public attitudes toward stuttering. There has been a need, however, for a "standard" instrument that is able to detect changes in attitudes in different population samples on a global basis. The *Public Opinion Survey of Human Attributes–Stuttering (POSHA–S)* was designed

specifically for that reason and has been shown to be a user-friendly, valid, and reliable measure (St. Louis, 2005, 2011, 2012; St. Louis, Lubker, Yaruss, Adkins, & Pill, 2008; St. Louis, Williams, Ware, Guendouzi, & Reichel, 2014). Evidence of similarity of results using the early experimental version (i.e., the *POSHA-E2* described by St. Louis, Lubker, Yaruss, and Aliveto [2009]) and final version of the *POSHA-S* also exists. For example, with a two-week test-retest analysis with the *POSHA-S* with no intervening treatment and with both written and online questionnaires, St. Louis (2012) showed that the final version generated similar results to the earlier version.

The *POSHA-S* consists of a demographic section, a general section comparing stuttering to four other “anchor” human attributes, and a detailed stuttering section dealing with beliefs about and self reactions to stuttering (St. Louis, 2005, 2011, 2012; St. Louis et al., 2008). The *POSHA-S* employs a 1–3 rating scale of “no,” “not sure,” and “yes” responses to detailed stuttering items and a 1–5 rating scale for general items.

The standard demographic section consists of information about birthplace, sex, marital status, occupation, current city of residence, income relative to others in one’s family/friends and one’s country, languages understood and spoken, race, religion, physical and mental health, ability to learn or speak, and various life priorities. Considering that all respondents in this study were from one school, they were only questioned about their age, birthplace, current place of residence, sex, grade in school, native language, other languages understood and spoken, race, religion, family’s income, and health/abilities.

The general section contains four questionnaire items on stuttering plus the four other “anchor” attributes, i.e., intelligent, left handed, mentally ill, and obese. The section’s purpose is to provide potential predictors of stuttering attitudes based on attitudes toward other positive,

neutral, and negative human attributes (St. Louis et al., 2008) The questions concern respondents' overall impression, amount of information known, whether they would want to be a person with that condition, and people they know who have the condition.

The longer stuttering section asks respondents to respond to items, “yes,” “no,” or “not sure,” related to their beliefs about abilities, causes, sources of help, and personality traits. In addition, it also asks for ratings of reactions to people who stutter as well as experiences with and sources of knowledge about stuttering.

Standard *POSHA-S* scoring involves converting item means to a -100 to +100 scale where 0 refers to the middle or neutral value. Some item ratings are inverted so that higher scores reflect more sensitive or accurate (“positive”) attitudes and lower scores reflect less sensitive or accurate attitudes (or relatively more “negative”) attitudes. Means for the *POSHA-S* items are combined into appropriate components scores such as “traits/personality,” and means of the components are combined into either of two subscores related to stuttering i.e., *Beliefs* about—and *Self Reactions* to—people who stutter. Finally, an Overall Stuttering Score is obtained which is the mean of the two subscores for stuttering. Additionally, there is a subscore for Obesity/Mental Illness (St. Louis, 2011, 2012).

Respondent Characteristics

Respondents were middle school students consisting of 6th, 7th, and 8th graders who were middle school students at Long Drain School, a rural elementary and middle school in the Wetzel County, West Virginia public school system. All students were enrolled in regular education classes and had no reported cognitive or behavioral disorders. As well, none had any known history of being enrolled in speech therapy for the treatment of stuttering as determined by a demographic questionnaire filled out by the participants at the time of the study.

Respondent Demographic Area

Respondents lived in various rural areas of Wetzel County, West Virginia, primarily the towns of Hundred and Littleton. The population of Hundred was 299 at the 2010 census (0% urban; 100% rural) (U.S. Census Bureau , 2010d). The racial makeup of the town was 99.0% White and 1.0% from two or more races. The estimated mean household income for 2012 was \$32,336 (U.S. Census Bureau, 2010a). The population of individuals 25 years and higher in Hundred with a high school diploma was 92%, bachelors degree 6.2%, and graduate degree 3.3% with an unemployment rate of 10.3% (“Hundred, West Virginia,” n.d.) . The population of Littleton, WV was 198 as of the census of 2010 (U.S. Census Bureau, 2010c). The racial makeup of this town was 96% white and 4% for two or more races (U.S. Census Bureau, 2010c). The median income for a household in the town was \$15,714. The per capita income for the town was \$6,036, which is the lowest in the state. About 52.7% of families and 64.6% of the population were below the poverty line, including 83.5% of those under the age of 18 and 30.8% of those 65 or over. The unemployment rate in this area is 24.6% (“Littleton, West Virginia,” n.d.).

Long Drain School is a public elementary and middle school in the Wetzel County School District. It has enrolled approximately 282 students according to elementaryschools.org. It has an equal 50/50 ratio of male/female female with 99% white racial makeup. The percentage of Long Drain School students on free and reduced lunch assistance (63.8%) is higher than the state average of 55.1%, suggesting that the area has a higher level of poverty than the state average. For 2014, a family of two needs to make an annual income below \$20,449 to be eligible for free meals or below \$29,100 for reduced price meals. A family of four needs to make an

annual income below \$31,005 for free meals or \$44,122 for reduced price meals (“Long Drain School,” n.d.).

Treatment Video

The Stuttering Foundation’s free online video, *Stuttering: For Kids, by Kids*, was used for this study. The video features children and adolescents, 10 males and 4 females, who stutter as they discuss their stuttering, dealing with teasing, what helps, and how to teach others about stuttering. The video was chosen because (a) it was a relatively recent and public documentary about stuttering at the time of the study, (b) it depicts adolescents who stutter, the target population for this study, and (c) it is a widely known video that could be used in replications of this study.

Experimental Procedures

Testing took place in Long Drain School between April, 2014 and April, 2015. A pilot study was conducted with the *POSHA–S* being given (PRE) in April, 2014 test followed by viewing the *Stuttering: For Kids, by Kids* video. Then, one month later, the *POSHA–S* was readministered (POST1) in May, 2014. Due to an insufficient number of middle schoolers willing to participate in the pilot study, a larger study was conducted with the first *POSHA–S* (PRE) administered in February, 2015. The larger study offered an incentive to any students (a \$15 Walmart gift card) who completed the study, including pilot study participants who were still in the school. Participating pilot students completed a third, follow up *POSHA–S* (POST2 condition) in March, 2015 to help determine permanence of attitude change, roughly one year after their initial survey. The second study POST1 condition for the 2015 respondents was

conducted in March, 2015, and the POST2 condition was completed one month later in April, 2015.

Respondents were self- and parent-selected from a list of names provided by the principal at the school. According to approved guidelines by the West Virginia University Institutional Review Board, only students whose parents who had signed and returned consent forms and students who themselves had signed assent forms for participation were eligible for inclusion in the study. Student recruitment took place within their science classroom wherein the author came to the school and discussed with the students who she was, what the study was about, and the type of questionnaire they would be asked to complete. Students who wished to participate took printed consent forms home, and those who parent or guardian did consent participated. The author distributed the questionnaires for the PRE test to the students during their science classroom time in a meeting room away from other students, told them that their responses would remain confidential, read the instructions, and handed out a pencil and paper version of the *POSHA-S* to complete. After 7 days, she returned to the school, went to the science classroom and there showed the *Stuttering: For Kids, by Kids* video on a Smart Board. Immediately after viewing the video, each participant completed the *POSHA-S* again. One month later, the author returned to the school, went to the same classroom, and distributed the *POSHA-S* again in the same classroom. In all administrations, the students were encouraged to ask questions individually of the author if they did not understand a statement or question on the *POSHA-S* questionnaire. As noted, all students who completed the three administrations (including ten 2014 respondents who were still in the school) received a \$15 Walmart gift card for their participation.

Data Analysis

Tabular and graphic comparisons were generated for each of the three administrations of the *POSHA-S*, i.e., PRE, POST1, and POST2. Graphic representations of each sample were made visually and compared with previous samples using the *POSHA-S*. For PRE versus POST1 and POST1 versus POST2 analyses, individual item and combined item ratings of the *POSHA-S* for all the conditions were compared using paired *t* tests for dependent samples with the Bonferroni correction as has been done by St. Louis in numerous investigations (St. Louis, 2012). Cohen's (1988) *d* effect sizes were computed for significant differences. *POSHA-S* sample data are typically displayed in a standard radial format depicting the components and subscores along with the Overall Stuttering Score. The graph further provides a comparison of the scores with the highest, lowest, and median sample means that have been obtained. For this study, the data represent 125 samples consisting of 9991 respondents (circa, July, 2015).

RESULTS

Respondent Characteristics

Table 1 summarizes the *POSHA-S* demographic information for the PRE, POST1, and POST2 samples. The first or PRE condition involved 55 students (60% male and 40% female; mean age = 12.8 yr). The post-video or POST1 condition had 49 of the same students (60% male and 40% female; 12.8 yr), and the later POST2 condition involved 39 students of the original respondents (70% male and 30% female; mean age = 13.0 yr). It is important to note the differences in sex ratios between the PRE, POST1, and POST2 conditions as compared to the database average (30% male and 70% female).

As seen in Table 1, the students rated their health and abilities very consistently with the database median. The students rated their physical health better than the *POSHA-S* database (55, 59, 58 versus database median = 44). Regarding their self rating of life priorities, the students found it less appealing to “spend time alone” (13, 2, -6 versus database median = -19) and “be free” (42, 33, 17 versus database median = 63). However, they would rather have more exciting experiences in their life (7, 7, 13) than compared to the adult average (-19).

Table 1: Demographic Summary of Respondents in PRE, POST1, POST2 Samples and the *POSHA-S* Database Median

Demographic Variable	PRE	POST1	POST2	<i>POSHA-S</i> Database Median
Number	55	49	39	61
Age: Mean (year)	12.8	12.8	13.0	37.4
Grade Level: Mean (year)	6.7	6.7	6.8	—
Male/Female %	60/40	60/40	70/30	30/70
Income Score (-100 to +100)	18	21	14	—
Self Identification (%)				
Obese	5	4	5	5
Mentally Ill	0	0	0	0
Intelligent	27	29	28	27
Left-handed	11	16	13	8
Stuttering	0	0	3	0
No People Known (%)				
Obese	13	20	18	10
Mentally Ill	35	53	33	26
Intelligent	4	18	13	2
Left-handed	7	4	3	7
Stuttering	20	29	23	30
Self- rating of health and abilities (-100 to +100)				
Physical health	55	59	58	44
Mental health	66	68	57	57

Ability to learn	57	59	59	58
Speaking ability	59	60	59	62
Self-rating of life priorities (-100 to +100)				
Be safe/secure	62	57	56	82
Be free	42	33	17	63
Spend time alone	13	2	-6	35
Attend social events	24	12	24	15
Imagine new things	32	22	16	33
Help less fortunate	48	41	31	49
Have exciting experiences	7	7	13	-19
Practice my religion	42	34	40	17
Earn money	56	52	44	56
Do job/duty	65	57	59	74
Get things done	73	70	62	73
Solve big problems	53	63	64	69

Stuttering Attitudes in Middle School Students compared to *POSHA-S* database

The first experimental question address in this study was to determine how similar middle school students' attitudes are to adults in the *POSHA-S* database. Mean *POSHA-S* ratings for all respondents are shown in Appendix B which shows the mean results for the Overall Stuttering Scores, subscores, components, and items for PRE, POST1, POST2, and *POSHA-S* database median. It also shows the percentile values of the PRE means relative to the samples in the database.

Figure 1: Summary *POSHA-S* graph for Middle School PRE condition showing component scores, subscores, and Overall Stuttering Scores in relation to the highest, lowest, and median sample means from the *POSHA-S* database.

Figure 1 represents converted mean *POSHA-S* component scores, subscores, and Overall Stuttering Score for the PRE samples. The mean values of PRE respondents in this study were quite close to the median (or “average”) ratings. Evidence of the typical stuttering stereotype, generally as noted by a negative score on trait variables related to nervousness and shyness did not emerge in the PRE test group (nervous/excitable and shy/fearful = 23). Visually, it appears that the students held more positive impressions of someone with obesity or mental illness than average (21 versus database median = -16). Although the typical adult sample held a neutral impression on stuttering (0), the middle school students held a more positive impression of stuttering (29). When asked whether they would want to be someone who stutters, the

respondents answered quite negatively (-57), but better than when asked if they would want to have a mental illness (-77).

The subjects did not report a general feeling of discomfort or concern regarding the disorder as evidenced by their response to their apprehension if a sibling began to stutter (15 versus database median = -16). Their response was still guarded if they themselves began to stutter (-8), but was still less of a concern to them in comparison to the database median (-47). Additionally, the data suggested that the middle school students' source of knowledge about stuttering was below average in relation to the *POSHA-S* database median and that their knowledge comes mostly from school as compared to the other sources.

The percentiles of the ratings were calculated from all the study samples in the *POSHA-S* database. The 1st quartile (0-25th percentile) had 19% of the mean ratings, 59% in the interquartile range (25th-75th percentile), and 22% in the 4th quartile (75th-100th percentile). From this, we can conclude that the data taken from the middle school students were quite comparable to those adults across the world.

As noted, Appendix B shows results for all PRE, POST1, and POST 2 respondents and compares them to the *POSHA-S* database. It can be seen that the middle school students' perceptions of stuttering and people who stutter, as evidenced by an Overall Stuttering Score of 18 for the PRE condition, 19 for the POST1, and 18 for the POST2, were similar to people across the world as the median sample mean Overall Stuttering Score i.e., 17, from 125 *POSHA-S* database samples obtained from 9991 public respondents across the world. These findings are also apparent in the radial graph showing components, subscores, and the Overall Stuttering Score for the PRE, POST1, and POST2 samples in Appendix C. For example, the middle school

students' knowledge source from the PRE, POST1, and POST2 conditions (-39, -27, -27, respectively) is below average as compared to the database median (-9). Additionally, middle school students held more positive than average attitudes for the components of social distance/sympathy (25, 20, and 15 versus database median = 8) and traits/personality (38, 29, and 30 versus database median = 15). The students overall impression of obesity and mental illness (21, 18, and 17) was much less negative than the median response (-16).

Stuttering Attitude Change in Middle School Students

The second experimental question concerns changeability of the attitudes of middle school students toward stuttering. Table 2 illustrates the results used in the paired t test statistical comparisons for the Overall Stuttering Scores, subscores, components, and individual items for PRE, POST1, POST2. (For ease of comparisons, the *POSHA-S* database means are also provided.) Importantly, in order to calculate t test comparison for dependent data, only the same (paired) individuals can be considered for PRE versus POST1 and POST1 versus POST2 comparisons. Thus, in this case, 49 students filled out both the PRE and POST1 *POSHA-Ss* (Columns 2 and 3) and 39 filled out both the POST1 and POST2 (Columns 4 and 5). Statistically significant differences are highlighted in the table.

Table 2: Mean ratings for paired respondents for *POSHA–S Overall Stuttering Scores*, Subscores, Components, and Items. (Statistically significant differences [$p \leq .00417$] between PRE versus POST1 or POST1 versus POST2 means are highlighted with shading.)

<i>POSHA–S</i> Variable	PRE	POST1	POST1	POST2	<i>POSHA–S</i> Database Median
Number	49	49	39	39	–
OVERALL STUTTERING SCORE	17	19	18	18	17
Beliefs About People Who Stutter	35	38	38	38	32
Traits/Personality	37	29	29	30	15
Have themselves to blame ^a	67	82	85	77	77
Nervous or excitable ^a	21	6	10	10	-4
Shy or fearful ^a	23	-2	-8	3	-24
Stuttering should be helped by	15	29	32	28	16
Speech and language therapist	81	76	79	85	93
Other people who stutter	-29	16	18	-3	-2
Medical doctor ^a	-8	-6	-3	3	-32
Stuttering Is Caused by:	31	31	32	36	32
Genetic inheritance	28	21	18	28	17
Learning or habits ^a	40	20	18	36	19
A very frightening event ^a	23	29	32	23	-4
An act of God ^a	-8	-6	3	10	60
A virus or disease ^a	35	59	62	46	39
Ghosts, demons, spirits ^a	67	65	62	74	87
Potential	59	62	58	59	64
Can make friends	96	82	77	95	92
Can lead normal lives	75	86	82	85	89
Can do any job they want	65	65	68	62	45
Should have jobs requiring good judgment	2	14	5	-5	40
Self Reactions to People Who Stutter	-2	0	-2	-2	2
Accommodating/Helping	41	35	33	34	40
Try to act like the person was talking normally	62	47	38	49	81
Person like me	-23	-22	-23	-38	-28
Fill in the person's words ^a	34	39	38	46	25
Tell the person to "slow down" or "relax" ^a	-2	-31	-31	-28	2
Make joke about stuttering ^a	96	92	90	90	88
Should try to hide their stuttering ^a	81	85	87	87	72
Social Distance/ Sympathy	24	20	22	15	8
Feel comfortable or relaxed	47	59	59	54	31
Feel pity ^a	-2	4	-3	3	16
Feel impatient (not want to	74	86	82	77	60

wait while the person stutters)					
^a					
Concern about my doctor ^a	64	33	41	8	39
Concern about my neighbor ^a	55	53	59	51	69
Concern about my brother or sister ^a	11	4	10	0	-16
Concern about me ^a	-11	-33	-28	-28	-47
Impression of person with stuttering	33	36	36	26	0
Want to have stuttering	-57	-62	-58	-55	-70
Knowledge/ Experience	-29	-27	-32	-31	-34
Amount known about stuttering	-29	-24	-32	-22	-31
People with stuttering known	-79	-82	-83	-79	-86
Personal experience (me, my family, friends)	21	25	18	8	14
Knowledge Source	-44	-27	-30	-27	-9
Television, radio, films	-56	-2	-3	-31	16
Magazines, newspapers, books	-60	-73	-74	-67	-8
Internet	-64	-48	-59	-36	-19
School	-4	33	26	31	1
Doctors, nurses, other specialists	-37	-46	-41	-33	-32
Obesity/ Mental Illness	-22	-25	-27	-22	-35
Overall Impression	26	18	17	17	-16
Obesity	24	20	18	18	-23
Mental Illness	18	16	16	16	-8
Want to Have	-73	-76	-74	-65	-84
Obesity	-70	-78	-79	-63	-83
Mental Illness	-76	-73	-70	-67	-83
Amount Known about	-19	-17	-23	-20	-5
Obesity	-4	2	-5	-9	3
Mental Illness	-33	-36	-41	-30	-18

^a The signs of the mean ratings for this item are reversed so that higher scores reflect “better” attitudes and lower scores “worse attitudes.

PRE vs POST 1: Summary

Figure 2: Mean components and subscores contributing to the *POSHA-S* Overall Stuttering Scores for Middle School students PRE and POST1 condition in relation to the highest, lowest, and median sample means from the *POSHA-S* database.

Figure 2 represents converted mean *POSHA-S* component scores, subscores, and Overall Stuttering Score for the paired PRE and POST1 samples. Evident from the graph, PRE and POST1 group means were very similar. Although a visual comparison reveals very similar patterns, pair-wise *t*-test comparisons using the Bonferroni correction revealed statistically significant improvements for two items between PRE and POST1. These were stutterers should be helped by other stutterers (-29 to 16), and “tv, radio, and films” (-56 to -2) as the source of the students’ information about stuttering. Cohen’s *d* effect sizes for these two items were, respectively, .55 and .61, both reflecting a moderate effect size. No other differences were

statistically significant after watching *Stuttering: For Kids, By Kids*; however, several nonsignificant trends ($.00417 < p < .05$) occurred. The students had greater sources of knowledge about stuttering in POST1 compared to PRE. By contrast, three trends emerged indicating negative changes in attitudes. These included stutterers (not) being able to make friends (96 to 82), being more likely to tell a stuttering person to “slow down” or “relax” (-2 to -31), and greater concern if their doctor stuttered (64 to 33).

PRE vs POST 1: General

Figure 3: Mean *POSHA-S* general section results for PRE and POST1 samples, including components contributing to the Obesity/Mental Illness subscore.

Figure 3 presents typical profiles (presented in mean ratings) for the five attributes in the general section of the *POSHA-S*. As can be seen, the profiles were very similar between PRE

and POST1 samples. Visibly the students had better impressions of stuttering (33, 36) than mental illness (28, 16) or obesity (24, 20). When asked whether they would want to be someone who stutters, they responded fairly negatively (-57, -62), but better than when asked if they would want to be someone who is obese (-70, -78). Additionally, when asked about the amount known about stuttering, the students knew significantly less (-29, -24) than other attributes such as intelligence (30, 27) and obesity (-4, 2).

PRE vs POST 1: Beliefs about People Who Stutter

Figure 4: Mean item and component scores contributing to the *POSHA-S* Beliefs about People Who Stutter subscore (BEL) for PRE and POST1 conditions.

Figure 4 displays mean scores for all the items and four component scores that make up the *POSHA-S* Beliefs subscore. Looking at the trait component score, it indicates a general understanding among the students that people who stutter are not to blame for their condition (67, 82). On the other hand, the students held a neutral to inaccurate response between their PRE and POST1 condition in regards to the typical stuttering stereotype: people who stutter are nervous or excitable (21, 6) and shy or fearful (23, -2).

Both PRE and POST1 samples understood that speech-language pathologists (81, 76) could help with stuttering. The group believed strongly in the potential of people who stutter (56, 62), their ability to make friends (96, 82), and capability to lead normal lives (75, 86), but were less certain about people who stutter having jobs requiring good judgment (2, 14).

PRE vs POST 1: Self Reactions to People Who Stutter

Figure 5: Mean item and component scores contributing to the *POSHA-S* Self Reactions to People Who Stutter (SR) subscore for PRE and POST1 conditions.

Figure 5 shows similar mean scores for all the items and four component scores that make up the *POSHA-S* Self Reactions subscore (SR). Common in *POSHA-S* studies, beliefs about people who stutter (35, 38) were more positive than reactions to people who stutter (-2, 0). The data revealed that the students had an understanding of how to help someone who stutters (41, 35), but did not feel as if they in particular could be of help (-23, -22). They still believed that they would tell a person who was stuttering to “slow down” or “relax” (-2, -31).

Overall, the students’ responses reported positive reactions regarding their comfort level with someone who stutters as evidenced by their scores of 47 for the PRE sample and 59 for the POST1. They did feel slightly apprehensive if they themselves began to stutter (-11, -33), but not

as much if their sibling (11, 4), neighbor (55, 53), or doctor (64, 33) stuttered. In addition, the amount of knowledge reported from the samples was quite low (-29, -27). The data indicated that the students did not know many people who stuttered (-79, -82) nor had much knowledge regarding the condition (-29, -24). School (-4, 33) was reported as the biggest source of knowledge about stuttering.

Stuttering Attitude Permanence of Change

Data on the stability or permanence of change in middle school students' attitudes, i.e., the third experimental question, are shown in Columns 4 and 5 of Table 2 which displays the paired *POSHA-S* data for the POST1 and POST2 comparisons. Compared to the PRE versus POST1 comparisons, it can be seen that 10 fewer, or 39 students, filled out both the POST1 and POST2 surveys.

POST 1 vs POST 2: Summary

Figure 6: Mean components and subscores contributing to the *POSHA-S* Overall Stuttering Scores for Middle School students in the POST1 and POST2 condition in relation to the highest, lowest, and median sample means from the *POSHA-S* database.

Figure 6 indicates the Overall Stuttering Score between POST1 and POST2 group samples did not change after one month (or one year for 10 pilot study students); the mean was 18 for both. Also, for Beliefs and Self Reactions the means were identical in both conditions, 38, and -2, respectively. The much higher rating for Beliefs relative to the rating for Self Reactions is a consistent finding across *POSHA-S* studies (St. Louis, 2015). Inspecting the data further indicated no significantly different comparisons; however, there were two nonsignificant trends that emerged favoring the POST2 group: stutterers were believed more able to make friends (77 to 95) and concern if one's doctor stuttered (41 to 8) reduced. In addition, the students rated their

mental health worse between the POST1 and POST2 samples (68 to 57).

POST 1 vs POST 2: General

Figure 7: Mean *POSHA-S* general section results for POST1 and POST2 samples, including components contributing to the Obesity/Mental Illness subscore.

Figure 7 presents typical profiles for the five attributes in the general section of the *POSHA-S*. Visually, again it is apparent that the profiles were very similar between the POST1 and POST2 samples. The students held better impressions of stuttering (36, 26) than mental illness (16, 16) and obesity (18, 18), but not as high as intelligence (49, 45). Additionally, the students held a much more positive impression of the attributes of obesity, mental illness, and

stuttering as compared to the database median (-23, -8, 1, respectively), which is noted by the black dash mark in the graph.

When asked whether they would want to be someone who stutters, the students responded rather negatively (-58,-55), but better than when asked if they would want to be someone who is obese (-79, -63) or mentally ill (-70, -67). In addition, when asked about the amount known about stuttering, the students knew less (-32, -22) than other attributes such as intelligence (19, 15) and left-handedness (3, 6), but held more knowledge as compared to mental illness (-41, -30).

POST1 vs POST2: Beliefs about People Who Stutter

Figure 8: Mean item and component scores contributing to the *POSHA-S* Beliefs about People Who Stutter subscore (BEL) for POST1 and POST2 conditions.

Figure 8, which displays mean scores for Beliefs, indicates a general understanding among the students that people who stutter are not to blame for their condition (85, 77). On the other hand, the students held neutral beliefs between their POST1 and POST2 responses in regards to the typical stuttering stereotype, i.e., people who stutter are nervous or excitable (10, 10 versus database median = -4) and shy or fearful (-8, 3 versus database median = -24).

Before and after the followup period, the students understood that speech-language pathologists (79, 85) could help with stuttering along with other people who stutter (18, -3). When asked about the cause of stuttering, the students seemed to have accurate knowledge (32,

36 versus database median = 32). However, they were more accepting that stuttering is caused by an “act of God” (3, 10 versus database median = 60). The group believed in the potential of people who stutter (58, 59), their ability to make friends (77, 95), capability to lead normal lives (82, 85), and have any job they wanted (68, 62), but were less certain about people who stutter having jobs requiring good judgment (5, -5).

POST1 vs POST2: Self Reactions to People Who Stutter

Figure 9: Mean item and component scores contributing to the *POSHA-S* Self Reactions to People Who Stutter (SR) subscore for POST1 and POST2 conditions.

For Self Reactions, Figure 9 illustrates that the students had a general understanding of how to help someone who stutters (33, 34), but still felt they would tell a person who was

stuttering to “slow down” or “relax” (-31, -28 versus database median = 2). Furthermore, the students did not feel as if they in particular could be of help to people who stutter (-23, -38), which is similar to those attitudes in the *POSHA–S* database .

In general, the students indicated they would be comfortable around someone who stutters (59, 54). However, they did feel slightly apprehensive if they themselves stuttered (-28, -28). The amount of knowledge reported from the samples was low and comparable to the database median (-32, -31 versus database median = -33). The students did not indicate that they had much knowledge about stuttering (-32, -22) nor did they know many people who stuttered (-83, -79). Finally, the sources of information about stuttering reported indicated school (26, 31) being the biggest foundation for the middle school students facts.

Pilot Study with one-year follow up

As noted, the pilot study contained 10 individuals who completed the POST2 measure a full year after their POST1 *POSHA–S*. Given that no known study to date has looked at attitudes for any period of time after attempting to change them, the data from these 10 students was considered important enough to inspect independently. Also, since this group chose to do the PRE and POST1 conditions without a financial incentive, it is possible that their results would be different from the larger, combined sample.

Table 3 show the Overall Stuttering Score and subscores for the pilot students in the three conditions. Complete tabular data for these results as well as all items are listed in Appendix D. Appendices E–L show graphs for PRE versus POST1 and POST1 versus POST2 for the pilot respondents.

Table 3: Mean subscores for Middle School students PRE Pilot, POST1 Pilot, and POST2 Pilot condition

<i>POSHA–S</i> Variable	PRE Pilot	POST1 Pilot	POST2 Pilot
Overall Stuttering Score	29	21	29
Beliefs about People Who Stutter	52	42	46
Self Reactions to People Who Stutter	6	1	11
Obesity and Mental Illness	-43	-31	-27

PRE Pilot vs POST1 Pilot: Summary

Although the results cannot be accepted as representative due to the small sample size, a number of noteworthy trends emerged from the pilot study analyses. Most important, these middle school students demonstrated worse attitudes after watching *Stuttering: For Kids, By Kids*. Their Overall Stuttering Score was much higher than the combined sample at the outset (29) and worse after the video condition (21). The radial graph in Appendix E illustrates that the pilot respondents were especially worse for the traits and potential components after the video. The figure for anchor results (Appendix F) shows that the students held better impressions of stuttering after the intervention as noted by the POST1 Pilot score of 15 compared to the PRE score of -25 and had greater knowledge (-32, -22). Nevertheless, their scores were worse for wanting to be someone who is obese (-56, -70). The figure in Appendix G indicates that the students believed that people who stutter are not at all to blame for their speech disorder in both the PRE and POST1 conditions (100, 100), but their attitudes were less favorable after watching the video for trait variables related to nervousness/excitability (56, 10) and shyness/fearfulness (67, 10). In addition, after the video they were also less likely to believe that speech-language

pathologists (89, 70) should be consulted. On the other hand, their attitudes improved dramatically from PRE to POST1 for the item related to whether someone who stutters should help another individual who stutters (-56 to 40). The next figure (Appendix H) shows that the Self Reaction component items of helping shifted in a negative direction after the intervention (44, 37), as did the components for distance/sympathy (23, 18), and knowledge (-25, -32). The source of knowledge component remained the same (-20, -20).

POST1Pilot vs POST2 Pilot: Summary

After one full year, the Overall Stuttering Score for POST1 Pilot was 21 and returned to its original rating of 29 at the POST2 Pilot condition (same as the PRE Pilot Overall Stuttering Score) (Appendix I). While their impression of someone who stutters did not change (15, 15) (Appendix J), wanting to be someone who stutters reduced (-60,-70), as did wanting to be mentally ill (-65, -75). By contrast, rated amount of knowledge about stuttering increased (-50, -15). With respect to the effect of waiting one year on beliefs, the Appendix K figure depicts a worse attitude for the issue of self blame for a stutterer's condition (100, 80) and the notion that stutterers should help others who stutter (40, 20). Better attitudes characterized beliefs that speech-language pathologists should help (70, 100) and that people who stutter can make friends (90, 100) or lead normal lives (90, 100). For Self Reactions (Appendix L), some ratings resulted in better attitudes a year later (components of helping/accommodating (37, 48), distance/sympathy (18, 21), knowledge (-32, -15), and source of knowledge (-20, -8). Feeling pity improved from -50 to -10. Worse attitudes occurred for whether or not stutterers, themselves, should help another person who stutters (0, -20) or whether the respondents would feel comfortable talking to a stuttering individual (80, 50).

DISCUSSION

Negative attitudes toward stuttering are present throughout the world. Currently to the author's knowledge, no specific research studies have focused on attitudes toward stuttering of children in their middle school years and addressing whether these attitudes are amendable to change. Results from this investigation provide evidence that the attitudes of adolescents are similar to those of adults. The results also provide insight into the attitudes of middle school students and how they changed only minimally following a video intervention.

Experimental Question #1: *To what extent are middle school students' stuttering attitudes similar or different to the attitudes of adults?*

In this investigation, stuttering attitudes of middle school students were very similar to those of adults and were not remarkably different from the worldwide *POSHA-S* database sample median. The median value of the Overall Stuttering Score for the samples in the database indicates is 17, whereas the score for the middle school students were 18, 19, and 18, respectively. Using the *POSHA-S*, Özdemir et al. (2011) examined 6th grade students attitudes toward stuttering in two different representative samples. They demonstrated that children during this age span take on the attitudes of their parents and accept them as their own in that remarkably similar stuttering attitudes emerged for the children, their parents, their grandparents or adult relatives, and their neighbors. These findings suggest that by the middle school years (i.e 6th through 8th grades), children have likely already adopted their parents' or their community's attitudes.

The Long Drain middle school students rated their sources of knowledge about stuttering lower than respondents in the *POSHA-S* database, which were overwhelmingly adult

respondents. Specifically, the students rated “tv, radio, and films” in the PRE and POST2 conditions as -49 and -31, respectively, much lower than the database median of -3. Somewhat surprisingly, this item improved to the average database level of -2 immediately after the video but returned to a lower rating one month later. Other knowledge sources were more consistently lower in the students, i.e., “internet” (-56, -48, -36 versus database median = -31) and “print” (-52, -73, -67 versus database median = -10). These results would be expected because, compared to adults, the middle schoolers were younger but, more important, less likely to rely on newspapers, magazines, and other print media to obtain information (Rideout, Foehr, & Roberts, 2010). A study from the Kaiser Family Foundation in 2010 found that over the previous 5 years, minutes per day with magazines and newspapers dropped (from 14 to 9 minutes for magazines and from 6 to 3 minutes for newspapers). The proportion of young people who read a newspaper in a typical day dropped from 42% in 1999 to 23% in 2009 (Rideout, et al., 2010). However, the data revealed that the participants in the current study received their most useful source of knowledge about stuttering from school which went from 2 (reflecting an almost equal choice of “yes” and “no” on the item) at the PRE test to 33 for POST1 and 31 for POST2. This would be expected because the video intervention that was utilized in this study was presented in their school setting. The median for the database for “school” as the source of information about stuttering is -14.

Like other samples using the *POSHA-S*, the students in this study were very negative about the prospect that they would want to be a person with a stuttering disorder. By contrast, the students reported a much more positive impression of someone who stutters (PRE = 29, POST1 = 36, and POST2 = 26) than the database sample median (1). This was also true for their combined impression of someone with obesity or mental illness (21, 18, 17 versus database

median = -16) Taking this into account, one could hypothesize that the students' attitudes during this age range are relatively more positive than those of the mean in the database as a result of their school experience and indoctrination. With contemporary emphasis on reducing all school-wide bullying, today's educational system has focused on the inclusion of all individuals within the school environment. Accordingly, the author hypothesizes that this may have had a positive effect on the student's measured attitudes toward stuttering, obese, and mentally ill individuals that may not have been reflected as much in measured attitudes of adults.

Experimental Question #2: *Can attitudes of middle school students toward stuttering be improved?*

The data from this study quite clearly indicates that the video was not responsible for large changes in attitudes of the middle school students sampled in this investigation. The reason for a lack of positive change in their attitudes in this study cannot be easily explained and is likely due to a number of factors. One hypothesis is that the middle school students did not take the video seriously. In the current study, the film entitled *Stuttering: For Kids, By Kids* was used as the stimuli for the video intervention. The film, produced and made available free by The Stuttering Foundation (of America) (SFA), begins with a cartoon animation of a basketball named "Swish" and portrays children who stutter. One-by-one, the children introduce themselves and begin to talk about themselves and things that they enjoy doing. The video features elementary school-aged children as well as middle school students throughout the video, ranging in severity of stuttering from mild to moderately severe. The questions asked of the children who stutter throughout the video are: "What do you believe stuttering is?"; "Is stuttering the same for everybody?"; "Does it ever bug you that you stutter?"; "When does stuttering worry you the most?"; "When is talking easy for you?"; "Is stuttering a big deal for you?"; "Have you been

teased about your stuttering?"; "What should kids do if they get teased?"; "How do you help people to understand stuttering?"; and "Do you have any advice for kids that go to speech?"

Unlike all previous pre versus post *POSHA-S* studies attempting to improve attitudes toward stuttering (Abdalla, 2015), the *Stuttering: For Kids, By Kids* video had a minimal effect on the measured attitudes of the rural Appalachian middle school students in this study. Further, in the pilot study of 10 students, it appeared to have a negative effect on stuttering attitudes. The investigator speculates that the reason the film was ineffective in improving attitudes in middle school students was a combination of two factors. First, it is possible that the video was not taken seriously by the middle school students because they regarded it as too juvenile for them. For example, it starts with "Swish," a talking basketball in a cartoon-animated format. Second, the video begins with stories of children who were younger than middle school students. Thus, even though the video portrayed children who were old enough to be perceived primarily as peers to the students, for the majority of the film, it portrayed younger children. If this speculation is correct, it is reasonable to assume that the students did not regard the information presented in the video seriously enough for it to have an influence on their stuttering attitudes.

Three earlier intervention studies had mixed results using videos about children and adults who stutter with nonstuttering respondents, i.e., *Voices to Remember* (Bondarenko, 1992b) shown by McGee et al. (1996), a portion of *Speaking of Courage* (Bondarenko, 1992a) used in Snyder's 2001 study, and *True Life: I Stutter* utilized by Flynn & St Louis (2011). McGee et al. (1996) found that the film which features inspiring personal accounts of people who stutter did not improve perceptions of a male who stuttered on the Woods and Williams (1976) *BAS*. Snyder (2001) found that the other Bondarenko film did not change attitudes of college students after

completing the *CATS* inventory. By contrast, Flynn & St. Louis's (2011) study yielded positive results for a video changing attitudes of high school students.

One could speculate that the reason why Flynn's video intervention demonstrated positive results in changing attitudes, as opposed to the video intervention used in this study, was because the *True Life: I Stutter* video involves real life scenarios and struggles of three young adults who stutter rather than a question and answer format which was utilized in the *Stuttering: For Kids, By Kids* video. Also, the *True Life: I Stutter* video allows the viewer to see the impact stuttering has on the three featured individuals' day-to-day lives in such a way as to place the viewer "into their shoes" and to somehow "live their experiences" with them. In addition, the students might have felt more "connected" to the *True Life* video as it is a newer production than *Stuttering: For Kids, By Kids* and was featured on the popular MTV television channel developed for teenagers. It must be noted, however, that stories about individuals who stutter also exist in the Bondarenko films, and these did not yield positive attitude changes. Echoing Snyder (2001), the author questions whether it was his video intervention that did not change attitudes or if it was the measure he utilized in the study.

Another hypothesis that might explain the lack of change in the middle school students' stuttering attitudes is that, although their attitudes were similar to average adult attitudes in the region, their attitudes are more resistant to change than those of high school students about two years older (Flynn & St. Louis, 2011). The middle school students' attitudes remained stable throughout the course of the study, basically remaining the same. It was shown in Flynn & St. Louis's 2011 study of high school students that they hold similar attitudes toward stuttering as adults but that these attitudes can be improved by a presentation on stuttering, more with a live presentation from an individual who stutters than a video intervention. Perhaps the two-year

average increase in age of the high school students occasioned sufficient emotional maturation as to make them treat the interventions more seriously. Related to this hypothesis, i.e., that middle schoolers' attitudes are resistant to change and to the aforementioned hypothesis that they did not take the video seriously, the author observed that many of the middle school boys began to laugh at the children stuttering in the video, even to the point that a few girls spoke up and said to them "Shut up!" and "That's not nice."

Another hypothesis is that the lack of change in their stuttering attitudes might be related to geographic or socioeconomic factors. Rural communities are by definition less densely populated and more geographically isolated than non-rural communities. Moreover, the rural region chosen for study has higher rates of poverty than most of its surrounding regions. The rural communities of Hundred and Littleton, West Virginia area in which this study was conducted have high unemployment rates and a predominantly white racial makeup with limited experience with cultural or racial diversity. It would also be described as an area with lower-than-average socioeconomic status (U.S. Census Bureau, 2010a, 2010b, 2010c, 2010d).

Few studies have been completed looking at the predictive potential of socioeconomic status (SES) in stuttering attitudes. St. Louis and Rogers (2011) carried out a study to look at three measures of SES: years of education, relative income, and the Hauser and Warren (1997) Total Socioeconomic Index (TSEI). The study suggested that education and relative income provide a better prediction towards better stuttering attitudes than occupational status. Higher SES scores were associated with more positive attitudes. A recent study published by Weidner, St. Louis, Burgess, and Lemasters (2015) sampled young children in two areas with considerable SES variability. The study suggested that the age of the individual and cognitive development

may be more powerful factors in preschool and kindergarten children's stuttering attitudes than their family's SES.

A study conducted by St. Louis and numerous colleagues (St. Louis, personal communication, July 8, 2015), aimed to determine whether public stuttering attitudes are similar or different both within regions of three different European countries and between or among five different European countries or similar geographic areas. They found that the attitudes of adults from three geographically separate samples within Bosnia & Herzegovina, Italy, and Norway were remarkably similar. By contrast, attitudes between the five different countries or area were noticeably different. If SES and geography can affect attitudes, it is not unreasonable to assume that they could affect changeability of such attitudes as well. Oblique evidence for this hypothesis comes from speech-language pathologists who practice in Appalachia and report that one characteristic of people from Appalachia is that they appear to be resistant to change. Many SLPs noted that, as a whole, their clients perceive having a communication disorder as holding "little importance" relative to other variables such as health, income, and family stability (Weidner, M. E., Personal communication, 7-15-15).

Experimental Question #3: *To what extent are any changes in attitudes maintained?*

Because stuttering attitudes of the combined sample of middle school students changed only minimally after the video treatment, from the analyses carried out, this experimental question related to permanence of change cannot be answered sufficiently. To the extent that the data accurately reflect middle students' attitudes, it is evident that their attitudes are very steady.

Even so, the pilot data taken from 10 students in PRE Pilot versus POST1 Pilot study that was completed one month apart did show some differences, i.e., a worsening of some attitudes after the treatment. The subsequent POST2 Pilot data completed one year later resulted

in much higher Overall Stuttering Scores from these students alone. As the pilot data suggests, the students' attitudes became more negative after watching the video intervention, but returned back to their original level one year later. Overall Stuttering Scores were 29, 21, and 29, respectively.

It is important to note that these 10 pilot study students may not have been representative of all the middle schoolers in that their attitudes were, somewhat surprisingly, more positive than those of the combined sample, whose Overall Stuttering Scores were 18, 19, and 18, respectively. Nonetheless, the pilot data showed that these middle school students rated positively the potential in people who stutter to make friends and to lead normal lives. They also all had positive attitudes about not making jokes about stuttering with maximally positive scores of 100 for the PRE Pilot, POST1 Pilot, and POST2 Pilot conditions. It is also evident that their knowledge and experience with people who stutter was lacking. Compared to all of the data taken together, the students in the pilot study had a negative impression of people with obesity/mental illness, whereas the data comparisons with all subjects combined revealed a somewhat positive impression of these individuals.

The pilot data are more difficult to interpret than the total data. These individuals were not offered an incentive to participate so that their internal motivation to participate would be consistent with their higher scores. Nonetheless, it would not explain their increased negativity after the video and their laughing throughout it. Of course, these inconsistencies could be due to the small pilot sample size.

Limitations and Future Research

The current study has several limitations that warrant consideration. In addition to the possibility that *Stuttering: For Kids, By Kids* was regarded too juvenile for middle students, it

might not have been sufficiently contemporary. Released in 2007, it may have become too “old fashioned” for today’s middle school population. It is also possible that the video provided a distorted representation of children who stutter. As a result, the participants in the study may have developed perceptions of people who stutter based on a limited number of exposures to people who stutter and their experiences that were discussed by the children in the film.

Another limitation to this study is that it was carried out in one school in a small, rural area in West Virginia. For this reason it would be inadvisable to generalize the results about middle school students to those from other areas of the state of West Virginia, the United States, or other countries. The sample was also not comprehensive regarding ethnicity as the participant sample was composed entirely of Caucasians.

An additional limitation is that the students were offered an incentive (\$15 Walmart Gift Card) for completion of the study. It is possible that the students did not take the questionnaire or other portions of the study seriously, and were more interested in just “going through the motions” in order to obtain their incentive.

The results of this study may have also been influenced by a peer bias effect because data was collected through a group administration process versus an individual participant model. As a result, participants were in contact with peers throughout the presentation of questionnaires and the video intervention. This may have biased some participants’ answers, as they may have wanted to answer the questions similarly to peers. Additionally, the study consisted of a relatively small sample size which would limit the number of statistically significant differences in attitudes after a treatment.

Future research studies are suggested by the results of this investigation. Given the juvenile nature of the video *Stuttering: For Kids, By Kids* and that the featured stuttering children

were of different ages, research on how middle school and elementary school-age children perceive similar-aged peers who stutter in a more contemporary video would be advisable and could help answer the nagging questions about the suitability of the *Stuttering: For Kids, By Kids* video used in this study.

Additional research focusing on middle school students' perceptions of stuttering should be conducted with more representative and more culturally diverse middle school populations in order to rule out the potential influence of the low SES factors that affected the students in Long Drain School. Future studies into this topic should include respondents from suburban or metropolitan regions and provide sufficient demographic information to measure the effects of high versus SES and low SES.

From another perspective, it would be extremely useful to look extensively at elementary, middle school, and high school students' attitudes from the same district or school region, utilizing the same measure as used in this study. This would help clarify the development of children's stuttering attitudes as they progress through their early school years. It would also be valuable to collect concurrent data regarding the parental attitudes of the students as well to help determine whether parental and child attitudes are similar or different. It could also help verify when children's attitudes become more like their parents. The *Appraisal of the Stuttering Environment (ASE)* instrument, developed from an earlier version of the *POSHA-S* was designed to obtain such data (St. Louis, Kuhn, & Lytwak, 2015).

Finally, the influence of the response mode should be considered in future research. Upcoming studies could consider individualized methods of administration such as an online version of the questionnaire versus a paper-and-pencil version.

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Appendix A: POSHA-S

Instructions

Dear participant,

Thank you for agreeing to participate in this research project designed to explore public opinion about a number of human attributes and characteristics in various places around the world. The following survey asks for your honest opinions about five different human attributes and some information about yourself to help in interpreting the results from many people. The survey also asks for more detailed opinions about one of the human attributes.

Please do not write your name, address, or telephone number anywhere on the survey or on an envelope used to send it. It is important that your name is not included so complete confidentiality can be maintained.

Completely filled-out surveys will help provide a clearer picture of public opinion. Nevertheless, as you fill out the survey, you are free to omit any items or stop responding for any reason, without any prejudice or penalty.

The survey asks for a few written short answers and for checking boxes [0] that apply to you. But mostly it involves making judgments by **drawing a circle around** your answer. Some of these judgments are numbers on number scales, while others are “Yes,” “No,” or “Not sure” choices. There are no right or wrong answers! *We ask you to work quickly and mark your first impression.* Please do not go back and change any of your responses unless you later discover that you did not understand an item or that you answered on the wrong line.

When you give your opinion, be sure to **draw a small circle** around the number, “?”, or word that **best represents your opinion**. On the number scales, you may circle any number, but feel free to mark the extreme negative or positive ends of the scale as well as the exact middle if one of those best shows your opinion. When you check a box, please put a small ✓ in the box [0].

Following are four examples. The first one shows someone's fairly positive opinion about being *tall*, the second, a very negative opinion about being *short*, neutral about *wearing glasses*, and either has no opinion or knows nothing about *wearing a hearing aid*.

My general impression of a person who...	Very negative	Somewhat negative	Neutral	Somewhat positive	Very positive	Not sure
is tall	1	2	3	④	5	?
is short	①	2	3	4	5	?
wears glasses	1	2	③	4	5	?
wears a hearing aid	1	2	3	4	5	②

Thank you very much for your help.

Chelsea Kuhn and Kenneth St. Louis

Public Opinion Survey of Human Attributes-Stuttering (POSHA-S)

Please tell about yourself in this section.

Dates:	Month	Day	Year
Today's date is:	e.g., January _____	e.g., 23 _____	e.g., 2013 _____
The date I was born was:	_____	_____	_____

Residence and Citizenship	Country	State (or Province)	City (or Town, Village, Region)
I now live in:	_____	_____	_____
I was born in:	_____	_____	_____

Check [✓]

I am: ☐ Male ☐ Female

I am in the ____th grade (Write number).

My native language is: _____

I can also easily understand and speak the following languages:

1. _____ 2. _____ 3. _____

Circle the number (or ?) beside each characteristic or check [✓] the boxes that apply.

My family's income is [...] compared to the yearly incomes of...	Among the lowest	About average	Among the highest	Not sure

my family's friends and relatives	1	2	3	4	5	?
all people in my country	1	2	3	4	5	?

My race is: _____	My religion is: _____
-------------------	-----------------------

I would rate the following aspects of my life now as...	Very poor	Poor	Average	Good	Excellent	Not sure
my physical health	1	2	3	4	5	?
my mental health	1	2	3	4	5	?
my ability to learn new things	1	2	3	4	5	?
my speaking ability	1	2	3	4	5	?

For me, the <u>importance (or priority)</u> of each of these aspects in my life is ...	Never important	Usually <u>not</u> important	Equally important or not important	Usually important	Always important	Not sure
being safe and secure	1	2	3	4	5	?
being free to do what I want	1	2	3	4	5	?
spending quiet time alone	1	2	3	4	5	?
attending parties or social events	1	2	3	4	5	?
imagining new things	1	2	3	4	5	?
helping the less fortunate	1	2	3	4	5	?
having exciting but potentially "dangerous" experiences	1	2	3	4	5	?
practicing my religion	1	2	3	4	5	?
earning money	1	2	3	4	5	?
doing my jobs or my duty	1	2	3	4	5	?
getting things finished	1	2	3	4	5	?
figuring out how to solve important problems	1	2	3	4	5	?

Now, please give us your opinions about people with all the characteristics listed.

My overall impression of a person who...	Very negative	Somewhat negative	Neutral	Somewhat positive	Very positive	Not sure
is obese (much overweight)	-2	-1	0	+1	+2	?
is left handed	-2	-1	0	+1	+2	?
has a stuttering disorder	-2	-1	0	+1	+2	?
is mentally ill	-2	-1	0	+1	+2	?
is intelligent	-2	-1	0	+1	+2	?

I would want to be a person who...	Strongly disagree	Somewhat disagree	Neutral	Somewhat agree	Strongly agree	Not sure
is obese (much overweight)	-2	-1	0	+1	+2	?
is left handed	-2	-1	0	+1	+2	?
has a stuttering disorder	-2	-1	0	+1	+2	?
is mentally ill	-2	-1	0	+1	+2	?
is intelligent	-2	-1	0	+1	+2	?

The amount I know about people who...	None	A little	Some	A lot	A great deal	Not sure
are obese (much overweight)	1	2	3	4	5	?
are left handed	1	2	3	4	5	?
have a stuttering disorder	1	2	3	4	5	?
are mentally ill	1	2	3	4	5	?
are intelligent	1	2	3	4	5	?

Following are people I have known who... (Check [✓] all that apply)	Nobody	Acquaintance	Close Friend	Relative	Me	Other
are obese (much overweight)	0	0	0	0	0	0
are left handed	0	0	0	0	0	0
has a stuttering disorder	0	0	0	0	0	0
is mentally ill	0	0	0	0	0	0
is intelligent	0	0	0	0	0	0

Now, please give us more detailed opinions about the disorder of stuttering.

<u>People who stutter...</u>			Not sure
should try to hide their stuttering	Yes	No	?
should have jobs where they have to correctly understand and decide important things	Yes	No	?
are nervous or excitable	Yes	No	?
are shy or fearful	Yes	No	?
have themselves to blame for their stuttering	Yes	No	?
can make friends	Yes	No	?
can lead normal lives	Yes	No	?
can do any job they want	Yes	No	?

<u>If the following people stuttered, I would be concerned or worried...</u>			Not sure
my doctor	Yes	No	?
my neighbor	Yes	No	?
my brother or sister	Yes	No	?
me	Yes	No	?

<u>If I were talking with a person who stutters, I would...</u>			Not sure
try to act like the person was talking normally	Yes	No	?
make a joke about stuttering	Yes	No	?
fill in the person's words	Yes	No	?
feel impatient (not want to wait while the person stutters)	Yes	No	?
feel comfortable or relaxed	Yes	No	?
feel pity for the person	Yes	No	?
tell the person to "slow down" or "relax"	Yes	No	?

<u>I believe stuttering is caused by...</u>			Not sure
genetic inheritance	Yes	No	?
ghosts, demons, or spirits	Yes	No	?
a very frightening event	Yes	No	?
an act of God	Yes	No	?
learning or habits	Yes	No	?
a virus or disease	Yes	No	?

<u>I believe stuttering should be helped by...</u>			Not sure
other people who stutter	Yes	No	?
a speech and language therapist	Yes	No	?

people like me	Yes	No	?
a medical doctor	Yes	No	?

My <u>knowledge</u> about stuttering <u>comes from</u>...			Not sure
personal experience (me, my family, friends)	Yes	No	?
television, radio, or films	Yes	No	?
magazines, newspapers, or books	Yes	No	?
the Internet	Yes	No	?
school	Yes	No	?
doctors, nurses, or other specialists	Yes	No	?

You have finished! Thank you very much.

How long did it take you to fill out the survey? _____ minutes

Appendix B: Mean Ratings for PRE, POST1, and POST2 Data Respondents for *POSHA-S* Overall Stuttering Scores, subscores, components, and items (all or unpaired data) along with the POSHA-S database median and percentile values for PRE respondents relative to the 125 database samples.

<i>POSHA-S</i> Variable	PRE	POST1	POST2	<i>POSHA-S</i> Database Median	Percentile (PRE)
<i>Number of Respondents</i>	55	49	39	—	—
<i>OVERALL STUTTERING SCORE</i>	<u>18</u>	<u>19</u>	<u>18</u>	<u>17</u>	<u>49</u>
<i>Beliefs About People Who Stutter</i>	36	38	38	32	53
Traits/Personality	38	29	30	15	78
Have themselves to blame ^a	70	82	77	77	36
Nervous or excitable ^a	23	6	10	-4	71
Shy or fearful ^a	23	-2	3	-24	85
Stuttering should be helped by	16	29	28	16	42
Speech and language therapist	83	76	85	93	26
Other people who stutter	-28	16	-3	-2	21
Medical doctor ^a	-8	-6	3	-32	69
Stuttering Is Caused by:	30	31	36	32	40
Genetic inheritance	31	21	28	17	71
Learning or habits ^a	34	20	36	19	67
A very frightening event ^a	19	29	23	-4	66
An act of God ^a	-8	-6	10	60	19
A virus or disease ^a	32	59	46	39	38
Ghosts, demons, spirits ^a	70	65	74	87	18
Potential	59	62	59	64	30
Can make friends	96	82	95	92	66
Can lead normal lives	77	86	85	89	24
Can do any job they want	60	65	62	45	66
Should have jobs requiring good judgment	2	14	-5	40	9
<i>Self Reactions to People Who Stutter</i>	1	0	-2	2	44
Accommodating/Helping	44	35	34	40	53
Try to act like the person was talking normally	62	47	49	81	18
Person like me	-17	-22	-38	-28	66
Fill in the person's words ^a	40	39	46	25	62
Tell the person to "slow down" or "relax" ^a	0	-31	-28	2	42
Make joke about	96	92	90	88	75

stuttering ^a					
Should try to hide their stuttering ^a	81	85	87	72	63
Social Distance/ Sympathy	25	20	15	8	68
Feel comfortable or relaxed	48	59	54	31	64
Feel pity ^a	2	4	3	16	23
Feel impatient (not want to wait while the person stutters) ^a	73	86	77	60	67
Concern about my doctor ^a	60	33	8	39	72
Concern about my neighbor ^a	60	53	51	69	33
Concern about my brother or sister ^a	15	4	0	-16	66
Concern about me ^a	-8	-33	-28	-47	79
Impression of person with stuttering	29	36	26	0	89
Want to have stuttering	-57	-62	-55	-70	78
Knowledge/ Experience	-27	-27	-31	-34	68
Amount known about stuttering	-26	-24	-22	-31	53
People with stuttering known	-78	-82	-79	-86	83
Personal experience (me, my family, friends)	25	25	8	14	60
Knowledge Source	-39	-27	-27	-9	7
Television, radio, films	-49	-2	-31	16	4
Magazines, newspapers, books	-52	-73	-67	-8	8
Internet	-56	-48	-36	-19	18
School	2	33	31	1	48
Doctors, nurses, other specialists	-39	-46	-33	-32	40
<i>Obesity/Mental Illness</i>	-23	-25	-22	-35	87
Overall Impression	21	18	17	-16	99
Obesity	18	20	18	-23	98
Mental Illness	23	16	16	-8	93
Want to Have	-74	-76	-65	-84	76
Obesity	-71	-78	-63	-83	78
Mental Illness	-77	-73	-67	-83	69
Amount Known about	-16	-17	-20	-5	31
Obesity	3	2	-9	3	47
Mental Illness	-35	-36	-30	-18	18

Appendix C: Graphic comparison of the three middle school samples.

Mean component scores contributing to the *POSHA-S* subscore for Middle School students PRE, POST1, and POST2 condition in relation to the highest, lowest, and median sample means from the *POSHA-S* database.

Appendix D: Mean ratings for pilot data respondents (10 students) for *POSHA–S Overall Stuttering Scores*, subscores, components, and items.

<i>POSHA–S Variable</i>	PRE	POST1	POST2
<i>Number of Respondents</i>	10	10	10
OVERALL STUTTERING SCORE	<u>29</u>	<u>21</u>	<u>29</u>
<i>Beliefs About People Who Stutter</i>	52	42	46
Traits/Personality	74	40	33
Have themselves to blame ^a	100	100	80
Nervous or excitable ^a	56	10	30
Shy or fearful ^a	67	10	-10
Stuttering should be helped by	15	27	40
Speech and language therapist	89	70	100
Other people who stutter	-56	40	20
Medical doctor ^a	11	-30	0
Stuttering Is Caused by:	35	30	42
Genetic inheritance	11	20	50
Learning or habits ^a	56	20	50
A very frightening event ^a	44	30	30
An act of God ^a	-11	-10	10
A virus or disease ^a	33	50	40
Ghosts, demons, spirits ^a	78	70	70
Potential	83	70	68
Can make friends	100	90	100
Can lead normal lives	89	90	100
Can do any job they want	100	80	40
Should have jobs requiring good judgment	44	20	30
<i>Self Reactions to People Who Stutter</i>	6	1	11
Accommodating/Helping	44	37	48
Try to act like the person was talking normally	78	30	60
Person like me	-44	0	-20
Fill in the person's words ^a	56	50	80
Tell the person to "slow down" or "relax" ^a	22	-10	-20
Make joke about stuttering ^a	100	100	100
Should try to hide their stuttering ^a	56	50	90
Social Distance/ Sympathy	23	18	21
Feel comfortable or relaxed	89	80	50
Feel pity ^a	33	-50	-10
Feel impatient (not want to wait while the person stutters) ^a	67	60	60
Concern about my doctor ^a	78	50	30
Concern about my neighbor ^a	33	90	90
Concern about my brother or	11	30	20

sister ^a			
Concern about me ^a	-11	-50	0
Impression of person with stuttering	-25	15	15
Want to have stuttering	-72	-60	-70
Knowledge/ Experience	-25	-30	-15
Amount known about stuttering	-28	-50	-15
People with stuttering known	-80	-80	-80
Personal experience (me, my family, friends)	33	40	50
Knowledge Source	-20	-20	-8
Television, radio, films	-33	0	20
Magazines, newspapers, books	-56	-30	-30
Internet	-56	-40	-10
School	56	0	40
Doctors, nurses, other specialists	-11	-30	-60
<i>Obesity/ Mental Illness</i>	-43	-31	-27
Overall Impression	-35	-10	0
Obesity	-39	-10	-6
Mental Illness	-31	-10	6
Want to Have	-67	-68	-70
Obesity	-56	-70	-65
Mental Illness	-78	-65	-75
Amount Known about	-28	-15	-10
Obesity	-11	5	-5
Mental Illness	-44	-35	-15

Appendix E: Mean components and subscores contributing to the *POSHA-S* Overall Stuttering Scores for Middle School students PRE Pilot and POST1Pilot condition in relation to the highest, lowest, and median sample means from the *POSHA-S* database.

Appendix F: Mean *POSHA-S* general section results for PRE Pilot and POST1 Pilot samples, including components contributing to the Obesity/Mental Illness subscore.

Appendix G: Mean item and component scores contributing to the *POSHA-S* Beliefs about People Who Stutter subscore (BEL) for PRE Pilot and POST1 Pilot conditions.

Appendix H: Mean item and component scores contributing to the *POSHA-S* Self Reactions to People Who Stutter (SR) subscore for PRE Pilot and POST1 Pilot conditions.

Appendix I: components and subscores contributing to the *POSHA-S* Overall Stuttering Scores for Middle School students POST1 Pilot and POST2 Pilot condition in relation to the highest, lowest, and median sample means from the *POSHA-S* database.

Appendix J: Mean *POSHA-S* general section results for POST1 Pilot and POST2 Pilot samples, including components contributing to the Obesity/Mental Illness subscore.

Appendix K: Mean item and component scores contributing to the *POSHA-S* Beliefs about People Who Stutter Subscore (BEL) for POST1 Pilot and POST2 Pilot conditions.

Appendix L: Mean item and component scores contributing to the *POSHA-S* Self Reactions to People Who Stutter (SR) subscore for POST1 Pilot and POST2 Pilot conditions.