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**Research Article**

# Addressing Attitudes About Stuttering in Preservice Teachers

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**ABSTRACT**

**Purpose:** This study explored the impact of in-person oral presentations on stuttering as a means of improving attitudes toward stuttering among preservice teachers. The educational intervention was tested under three conditions, which varied according to who presented the information. The research question sought to determine if differences in group change scores on the Public Opinion Survey Human Attributes–Stuttering (POSHA-S) occurred after training.

**Method:** University classes containing 48 preservice teachers were randomly assigned to either one of two experimental groups or to a control group. The two experimental groups received a presentation on stuttering given by a speech-language pathologist (SLP), with or without a child who stutters. The control group received no training. The change in the Overall Stuttering Score of the POSHA-S was compared between the groups.

**Conclusions:** The results indicated that the SLP-only group had a statistically significant improvement on the POSHA-S compared with the control group. Education significantly improved the attitudes of both experimental groups. This research supports the potential benefit of training future educators on stuttering using in-person oral presentations. Clinical and research implications of this study are discussed.

The school-age years have been recognized as some of the most difficult for individuals who stutter. Negative classroom experiences have been documented in the stuttering research literature as well as in published personal accounts (Corcoran & Stewart, 1998; Daniels et al., 2012; Klompass & Ross, 2004). For example, a compilation of stories from interviews of stutterers include numerous struggles that occurred in the classroom due to others' lack of understanding of stuttering (St. Louis, 2021). It is not surprising that members of a child's social network may hold inaccurate beliefs or subscribe to unsupportive practices toward stuttering when cultural channels often depict stuttering in a negative fashion (Boyle, 2013).

A social model of intervention is a helpful framework to consider the full impact of the problem. In 2001, the World Health Organization began utilizing an updated ICF (International Classification of Functioning, Disability, and Health) model. The newer model is reflective of a more person-centered philosophy. Some of the ways these revisions impact stuttering intervention include the development of advocacy strategies with clients to address stigmatizing attitudes in society as well as through greater interprofessional collaboration (Threats, 2006).

*Stigma* is described as a discrediting attribute or mark (Goffman, 1963). It comes from the Greek and Latin words for brand, marking the person who bears it as inferior. Stigma or negative attitudes toward stuttering with the resulting prejudice for those affected have been reported in the literature (Boyle, 2013). Moreover, stigma toward people who stutter has been documented extensively in the United States in college students (Dorsey & Guenther, 2000), nurses (Silverman & Bongey, 1997), employers (Hurst & Cooper,

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1983a), vocational and career counselors (Hurst & Cooper, 1983b; Walker et al., 2016), human resource management students (Abou-Dahech & Gabel, 2020), and educators (Yeakle & Cooper, 1986). Stigma has also been observed across cultures worldwide in numerous different countries and languages (St. Louis, 2015).

Looking back on their formative years, adults who stutter report that the public stigma experienced in elementary and high school has the potential to negatively affect all aspects of their lives (Corcoran & Stewart, 1998; Klompass & Ross, 2004). Coupled with internalized stigma, people who stutter often experience detrimental consequences in the form of higher levels of anxiety and depression (Boyle, 2015), job discrimination (Gabel et al., 2004), and a greater incidence of bullying (Hugh-Jones & Smith, 1999; Yaruss et al., 2004).

Efforts aimed at providing information to the public, as well as other targeted groups, to improve attitudes toward stuttering are ongoing. Boyle et al. (2016) carried out a study that sought to address public ignorance through stuttering education wherein the transmission of information via personal testimonies yielded the best results. A number of other studies used the Public Opinion Survey Human Attributes–Stuttering (POSHA-S; explained below) to track potential changes. Some were successful in documenting change in attitude following training (e.g., Flynn & St. Louis, 2011; St. Louis et al., 2018), whereas others were only partially successful (Abdalla & St. Louis, 2014), and some were unsuccessful (e.g., Kuhn & St. Louis, 2015). Different methodologies could potentially account for some of the inconsistencies. For example, Flynn and St. Louis (2011) showed a positive result in changing the attitudes of adolescents following educational intervention under two conditions (oral + video, versus oral only), with the most successful condition being oral presentation only. The informative but humorous oral presentation was given by a college student who stuttered and the video was a professional Music Television production featuring the same person along with two others who stuttered. This is an important aspect of the intervention since a 2016 study of beliefs and attitudes toward stuttering in the general public by Arnold and Li found that personal experiences with people who stutter were predictive of helpful and positive reactions toward stuttering.

St. Louis et al. (2020) retrospectively analyzed 29 educational intervention POSHA-S studies that sought to improve negative views toward stuttering. Two thirds of the interventions were successful to some degree. Interventions that were considered of high interest, garnered participant involvement and provided relevant information (but not too much) were deemed successful according to change scores on the selected portions of the POSHA-S.

St. Louis et al. (2020) also emphasized that in order for any intervention to be successful, a good match between the content and delivery of the intervention and the experience, capabilities, and interest of the target audience is essential.

Teachers are often among the first non-family members to witness the widespread impact of stuttering; therefore, investigators for 3 decades have sought to determine their attitudes. Research on stuttering attitudes of primary and secondary (K–12) teachers have shown that they hold unfavorable attitudes toward stuttering (Ruscello et al., 1991, 1994; Yeakle & Cooper, 1986). An exception to this finding is a study that surveyed 178 American K–12 teachers in which favorable views toward stuttering were reported (Irani & Gabel, 2008). Recently, using the large POSHA-S database, Arnold et al. (2015) found that, compared with nonteachers, teachers' attitudes in the United States toward individuals who stutter were no more positive than those of nonteachers. Based on these findings, it is imperative that we discover the most effective means of training this influential category of professionals as early as possible in their education. To date, relatively few studies have targeted teachers or teachers in training in attempts to change or improve their stuttering attitudes.

Panico et al. (2018) compared the stuttering attitudes of 107 veteran teachers to 117 preservice teachers in the United States. Findings suggested that being older, having more education, and being familiar with a person who stutters (acquaintance or close friend) resulted in more accurate beliefs about stuttering. The study also demonstrated that veteran teachers and preservice teachers alike would benefit from more knowledge about stuttering as well as how to best support students who stutter in the classroom. Abdalla and St. Louis et al. (2014) showed that preservice teachers in Kuwait were open to changing their beliefs about stuttering in a positive direction after a custom video educational intervention, but experienced teachers were not (Abdalla & St. Louis, 2014). In Poland, St. Louis et al. (2018) found that samples of both preservice and in-service teachers responded positively to interventions that provided stuttering education that included observing interactions with people who stutter. Given these mixed results, it is unclear if positive outcomes could be observed in different cultures (Arnold & Li, 2016).

Therefore, the aim of this study was to investigate the impact of stuttering education on preservice teachers' perceptions of stuttering for two reasons. First, preservice teachers have the potential to impact the lives of people who stutter if training is received prior to the launching of their careers. Second, although promising results of changing preservice teachers attitudes were observed in Kuwait (Abdalla & St. Louis, 2014) and Poland (St. Louis et al., 2018), it is unknown whether or not training could impact

stuttering attitudes in preservice teachers in the United States.

The specific research question is:

Is there a statistically significant difference in pre- and postchange scores in POSHA-S results (Overall Stuttering Score [OSS]) in preservice teachers who received one of the following: an in-person, oral presentation on stuttering given by a speech-language pathologist (SLP) and a graduate student in speech-language pathology (SLP-only group); an in-person, oral presentation on stuttering given by an SLP, a graduate student in speech-language pathology, and a person who stutters (SLP + PWS group); or no training (control)?

## Method

Participants were recruited from three undergraduate classes in the College of Education at the University of Louisiana at Lafayette, in their third year of elementary education following approval from the University of Louisiana at Lafayette Institutional Review Board. All participants were in their twenties, female, and had some degree of field experience with school children in the classroom. Participation was optional, and written consent was obtained. The three intact classes, all separate sections of Science, Technology, Engineering, and Math education classes, were randomly assigned to one of two experimental groups or to the control group. The experimental groups received 10 min of oral presentation of information about stuttering with an interactive component in one of two delivery methods: (a) an SLP and a graduate student in speech-language pathology (SLP-only) or (b) an SLP, graduate student in speech-language pathology, and a person who stutters (SLP + PWS). The graduate student was female, successfully completed a graduate level course in stuttering, and conducted supervised treatment with a person who stutters as part of her master's program. The person who stutters was 10 years old, a boy, and had a mild stuttering severity as determined by the Stuttering Severity Instrument–Fourth Edition (Riley, 2009). The control group did not receive any intervention/training. A total of 49 participants originally participated in this study. One participant was excluded due to what appeared to be inattentive responses (i.e., giving the same answer repetitively and quickly finishing the survey) leaving 48 remaining study participants. Each class was assigned to one of the following conditions: SLP-only, SLP + PWS, or control group. No participant was a member of more than one group. The SLP-only group consisted of 16 individuals, the SLP + PWS group consisted of 13 individuals, and the control group consisted of 19 individuals. Participants in all three groups reported comparable personal experience

with stuttering, and this was verified using a nonparametric statistical test (the Kruskal–Wallis test) based on a background question on the POSHA-S asking: “My knowledge about stuttering comes from personal experience (me, my family, friends).” Response options were “yes,” “no,” or “not sure” and were analyzed as ordinal data. The Kruskal–Wallis test revealed no statistically significant difference in personal experience with stuttering between groups ( $p = .729$ ).

The 10-min oral presentation for both experimental groups utilized a PowerPoint presentation (with corresponding script) about stuttering, developed by the first author, that included the following components: basic information, talking tips for teachers, creating a positive classroom environment for communication, what happens in speech therapy, famous people who stutter, conclusion/questions and answers (Q&A), and resources such as helpful books, websites, and community clinics/groups. Approximately 40% of the presentation content was related to knowledge of stuttering and its impact. The remaining 60% of the presentation content was concerned with providing suggestions on how best to support children who stutter in the classroom. For example, one of the components offered practical advice such as to refrain from finishing their sentences, do not rush them, and do not give suggestions like “slow down,” “take a breath,” or “think about what you are going to say” (Coleman, 2018; Yaruss et al., 2018).

Most components were delivered via a lecture-style format; however, the famous people who stutter and conclusion/Q&A portions garnered active participation from the audience involving the SLP or person who stutters (depending on group assignment). For example, participants in the study had the opportunity to identify celebrities while looking at a handout featuring photos of 18 famous people who stutter in response to presenter clues given orally (Stuttering Foundation, 2001). The person who guessed these names first and correctly had a prize (i.e., a candy bar) thrown to them “Mardi Gras style.” This occurred for three of the 18 featured celebrities.

For the SLP + PWS group, the person who stutters was involved by presenting 3/7 components of the content independently (both interactive segments plus a talking tips for teachers segment). The location of the intervention was a classroom in the education building (where the participants met). The presentation with all of the components took approximately 10 min for each of the experimental groups.

The POSHA-S was used as the survey instrument for the dependent variable because of its high validity and reliability (i.e., St. Louis et al., 2014; St. Louis, Lubker et al., 2009; St. Louis, Reichel, et al., 2009) and its use in similar studies (e.g., Abdalla & St. Louis, 2014; Flynn & St.

Louis, 2011; St. Louis et al., 2018; Walker et al., 2016). Psychometric and usage properties have been shown to be satisfactory (St. Louis, 2011; St. Louis, Lubker, et al., 2009; St. Louis, Reichel, et al., 2009; St. Louis & Roberts, 2010; St. Louis et al., 2014). The OSS of the POSHA-S was used for analysis. This score ranges from -100, representing a very negative view of stuttering, to +100, representing a very positive view of stuttering. The POSHA-S, which is intended to be responded to anonymously, collects demographic information such as age, language spoken, work status, education, and place of residence. Next, respondents rate stuttering along with four other human attributes that are either generally regarded as positive (intelligence), neutral (left-handedness), or negative (mental illness and obesity). Three questions ask about general impressions, wanting to be/have, and amount know about the five attributes, all rated on 1–5 scales. The fourth question asks respondents to check all that apply for any stutterers known (nobody, acquaintance, friend, relative, me, and other). A detailed section on stuttering follows (35 items). For each of the 35 questions related to stuttering (e.g., “I believe stuttering is caused by learning or habits”), the possible answer selections are “yes,” “no,” or “not sure” later converted to a 1 (no) to 3 (yes) scale. In summary, all of the responses make up eight components (Traits/Personality, Help From, Cause, Potential, Accommodation, Distance/Sympathy, Knowledge/Experience, and Knowledge Source) that are subsumed by the Beliefs and Self Reactions subscores. Furthermore, the OSS is the mean of the Beliefs and Self Reactions subscore (St. Louis et al., 2020). A third subscore is generated from general items for Obesity/Mental Illness. Finally, all ratings are converted to a -100 to +100 score, with some inverted so that, uniformly, higher ratings reflect more positive attitudes and lower ratings, less positive attitudes.

Participants were given the POSHA-S in its entirety on two occasions. The first administration was during a scheduled class time. The second administration was administered 5 days after the intervention (or no

intervention), as described previously. The data were concurrently entered into a spreadsheet by two investigators to mitigate the risk of human error.

After the data were entered into the spreadsheet, they were imported into IBM SPSS, Version 18, where data analysis took place. Data were analyzed using the nonparametric Kruskal–Wallis test to compare the change scores of the OSS between the three groups. This analysis was deemed appropriate owing to the relatively small sample size. In addition, when box plots were examined, five participants were considered outliers. The selected alpha level of significance was < .05. Independence of observations was achieved by ensuring that none of the 48 participants were members of more than one group. Pairwise comparisons were also performed using the Mann–Whitney U test, the nonparametric equivalent of the parametric independent *t* test. For pairwise comparisons, the alpha level was set at .05/3 (.017) to control for multiple contrast that could lead to Type I errors and the exact significance value was used.

## Results

Descriptive data for the POSHA-S OSS and OSS change scores are displayed in Table 1. The SLP-only group (*n* = 16) had a mean pretest OSS score of 28.25 (*SD* = 12.89) and a mean posttest score of 49.25 (*SD* = 13.18); the SLP + PWS (*n* = 13) group had a mean pretest OSS score of 27.92 (*SD* = 15.86) and a mean posttest score of 45.76 (*SD* = 41.15); and the control group (*n* = 19) had a mean pretest OSS score of 30.73 (*SD* = 16.59) and a mean posttest score of 38.21 (*SD* = 11.96). For OSS change scores (posttest OSS score minus pretest OSS score), the SLP-only group (*n* = 16) had a median OSS change score of 17 and a mean OSS change score of 21 (*SD* = 4.07). The SLP + PWS (*n* = 13) group had a median OSS change score of 19 and a mean OSS change score of 17.84 (*SD* = 18.9).

**Table 1.** Descriptive statistics.

Group	Participants	POSHA-S Results (overall stuttering scores)			
Condition	<i>n</i>	$\bar{x}$ pre	<i>SD</i> pre	$\bar{x}$ post	<i>SD</i> post
SLP-only	16	28.25	12.89	49.25	13.18
SLP-PWS	13	27.92	15.86	45.76	41.15
Control	19	30.73	16.59	38.21	11.96
	Participants	Change score			
Condition	<i>n</i>	$\bar{x}$	$\bar{x}$	<i>SD</i>	
SLP-only	16	17	21	4.07	
SLP-PWS	13	19	17.84	18.9	
Control	19	6	7.48	13.3	

Note. Public Opinion Survey Human Attributes–Stuttering; *n* = sample size;  $\bar{x}$  = mean, *SD* = standard deviation;  $\bar{x}$  = median; SLP-only = an SLP and a graduate student in speech-language pathology; SLP + PWS = an SLP, graduate student in speech-language pathology, and a person who stutters.



The large standard deviation was likely due to the small sample size as well as the presence of five outliers. Finally, the control group ( $n = 19$ ) had a median change score of 6 and a mean OSS change score of 7.48 ( $SD = 13.3$ ). Again, the relatively large standard deviation may have been due to the small sample size.

The data were analyzed using a nonparametric Kruskal–Wallis test to compare the change in overall stuttering scores that resulted in pre- to posttesting between the three groups (SLP-only, SLP + PWS, and control groups). This nonparametric statistical analysis was used due to the relatively small sample size and the presence of five outliers in one of the groups. The independent variable was the condition (SLP-only group, SLP + PWS group, and control group), whereas the dependent variable was the change score (posttraining OSS minus pretraining OSS). A statistically significant difference in change scores was observed between groups,  $\chi^2(2) = 6.633, p = .036$ , with a mean change score rank of 20.37 for the SLP-only group, a mean change score rank of 17.84 for the SLP + PWS group, and a mean change score rank of 7.47 for the control group. Pairwise comparisons of change scores between groups using the Mann–Whitney U test revealed a statistically significant difference between the SLP-only and control groups ( $U = 75, p = .010, d = .43$ ). The Mann–Whitney U test showed no statistically significant difference between change scores when comparing the SLP-only and SLP + PWS groups ( $U = 103.5, p = .982, d = .004$ ), or when comparing the SLP + PWS and control groups ( $U = 2.923, p = .087, d = .30$ ; see Table 2). In addition, it was logical to test whether the SLP-only group showed a significant difference from pre- to posttest. The same was done for the SLP + PWS condition. In order to make this comparison, a dependent  $t$  test was run for the SLP-only condition since the data were normally distributed as determined by the Shapiro–Wilk test ( $p = .833$ ) and box plot inspection revealed no outliers. The Wilcoxon signed-ranks test, the nonparametric equivalent of the dependent  $t$  test, was used for the SLP + PWS condition due to the presence of outliers. For the SLP-only condition, the dependent  $t$ -test revealed a statistically significant difference between pre and post OSSs on the POSHA-S,  $t(15) = -5.181, p = .0005, d = 1.29$ ). For the SLP + PWS condition, the Wilcoxon

signed rank test also indicated a statistically significant difference between pre and post OSSs on the POSHA-S ( $z = -2.769, p < .006, d = .76$ ).

## Discussion

This study aimed to investigate the effect of oral in-person presentation under different conditions to positively influence perceptions of stuttering in preservice teachers as measured by the POSHA-S. According to group pretest scores on the POSHA-S, scores for all three groups reflected generally positive (above “0”) stuttering attitudes and beliefs (see Table 1). The research question asked if an oral presentation on stuttering delivered under two different experimental conditions (SLP-only and SLP + PWS) could improve attitudes and beliefs about stuttering as demonstrated by change scores on the OSS of the POSHA-S when compared with the control group. The results indicated that the SLP-only intervention yielded change scores that were statistically significantly better than the results of the SLP + PWS and no intervention. Follow-up statistical testing of both types of oral presentation (SLP-only and SLP + PWS) showed improvement pre to post that reached statistical significance for either type of training. In other words, both types of intervention were effective when considering within-group changes.

These results align with previous research that found effective methods for combating public ignorance of stuttering (Boyle et al., 2016; Flynn & St. Louis, 2011). For example, in the retrospective analysis of similar educational interventions about stuttering by St. Louis et al. (2020), the informational content delivered in this study, like that of the most effective studies in the analysis, was high interest, garnered participant involvement, and provided relevant information. Moreover, this study corroborates research that indicated that the attitudes of preservice teachers toward people who stutter were amenable to change (Abdalla & St. Louis, 2014; St. Louis et al., 2018). It should be noted that the Abdalla and St. Louis study took place in Kuwait, the St. Louis et al. study took place in Poland, and this study took place in the United States.

**Table 2.** Results of Kruskal–Wallis H test and post hoc Mann–Whitney U Test.

Group	<i>n</i>	df	Kruskal–Wallis H	sig.
	48	2	6.633	.036*
Post hoc	U	sig.		
Control vs. SLP-only	75	.011**		
Control vs SLP + PWS	79	.087		
SLP only vs. SLP + PWS	103.5	.982		

*Note.*  $n$  = sample size; df = degrees of freedom; sig. = significance; SLP-only = an SLP and a graduate student in speech-language pathology; SLP + PWS = an SLP, graduate student in speech-language pathology, and a person who stutters.

\* $p < .05$ . \*\* $p < .017$ .

This research advances the field's understanding of how even a relatively short module on stuttering, when delivered optimally in an entertaining way, can make a positive change in the thoughts and feelings about people who stutter in preservice teachers.

The fact that change scores of the SLP + PWS group were not significantly different when compared with that of the control group may be due to a number of reasons. First, societal stigma toward stuttering may be a contributing factor to the less robust change scores for this group. Second, the relatively small number of participants in this group (13) and the presence of five outliers may have impacted the results. Due to these factors, results should be generalized with caution.

The clinical implications of the study support advocacy efforts. Factors affecting the impact of stuttering on a child who stutters are his internal reactions to stuttering as well as the reactions of others to stuttering within his environment. Some of the child's reactions may include embarrassment, shame, and anxiety about the next time he may "get stuck." These cognitive and affective reactions may increase speech tension, exacerbate feelings of struggle, and/or lead the child to avoid occasions of speaking. All of these internal responses can be impacted by the reactions of parents, classmates, and teachers to stuttering when it occurs (Boyle, 2015; Yaruss, 2010). The people in a child's social network may not understand what to do in these moments nor be sufficiently supportive. Moreover, the teacher's leadership in the social arena of the classroom should not be underestimated. Therefore, sharing helpful information with important people in the child's environment, like teachers, should be an integral part of a comprehensive treatment plan. The community-centered assessment and treatment model (Coleman, 2018) is an example of integrating education and advocacy into clinical practice. Coleman (2018) advocates the dissemination of helpful information about stuttering to parents, teachers, and coaches. Similarly, Yaruss, Reeves, et al. (2018) recommend class presentations on stuttering as a proactive tool to foster a supportive environment for people who stutter in an environment wherein many people who stutter may be reluctant to share information regarding stuttering with others. The presentation format discussed in this study can serve as an apprenticeship model for greater independence and self-advocacy. Over time, it may be possible that, through modeling by the SLP, some people who stutter would grow more willing to take a step in the direction of self-disclosure and self-advocacy.

Another implication of the results is the opportunity for greater interprofessional education at the university level for speech-language pathology and education students. The educational content of this study is similar to what other research has found to be important to share

interprofessionally with educators. This includes basic knowledge about stuttering as well as knowing how to react in a supportive manner when a child stutters (Cozart & Wilson, 2022). Increasing the dissemination of information that encourages and promotes stuttering alliance to preservice teachers in their respective curricula will be important. Successful collaborations such as this may pave the way for continued interactions for the benefit of people who stutter, once students are engaged in professional practice. Universities are optimal settings to foster these collaborative practices since departments are encouraged to work together and are often in relatively close proximity.

One of the limitations of our study was the relatively small sample size. Expanding this research to other universities across a wider geographical area could expand the data and draw more accurate conclusions. Moreover, the presence of five outliers in the SLP + PWS group was also a limitation of this study. An additional limitation is the tendency in self-reporting to answer the questionnaire in a way that is thought to be the most socially acceptable. Another potential limitation includes the use of all females as participants in the study. It is possible that results were influenced by this factor. The study can also be improved by including observational data and semistructured interviews to provide richer data.

More research is needed in the area of improving attitudes toward stuttering not only among educators but also among other groups that have the potential to make an indelible impact on the lives of people who stutter. Some of these groups include guidance counselors, school administrators, support personnel, extracurricular activity leaders, coaches, tutors, mentors, and all vocational categories that exist in the public and form the overall community. Additional investigation is also warranted to explore how serving in the role of a presenter as a person who stutters may impact the person's view of self as both a communicator and member of a language community.

## Data Availability Statement

The data sets generated and/or analyzed during this study are not publicly available due to ethical restrictions but are available from the corresponding author upon reasonable request.

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