ABSTRACT

Stuttering is a perplexing disorder with no definitive cause. Autonomic nervous system activation, syntactic complexity, motor control issues, and improper breathing patterns have been identified as several possible contributing factors (Kleinow & Smith, 2000). Relaxation methods such as yoga have been identified as a potential treatment option for PWS and has shown to be beneficial to this population (Balakrishnan, 2009). This study set out to determine if yoga-breathing techniques (Pranayama) reduces disfluencies and improves PWS' perceptions about their communication and anxiety. Four adults who stutter took part in this study. The participants attended varying numbers of treatment sessions (4-6) and engaged in some practice which was tracked over a period of two months. Results indicated that more with yoga practice, participants experienced improved fluency about daily communication as measured on the OASES (r(4) = .98, p = .022). Additionally, participants who expressed greater perceived value in the yoga treatment, via an open-ended questionnaire, were less anxious as measured on the Burns Anxiety Inventory (r(4) = -.95, p = .049). Overall, participants reduced disfluent speech from 7.1% syllables stuttered to 5.1% syllables stuttered over the course of treatment.

OBJECTIVES

The purpose of the present study was to determine the effectiveness of pranayama (yoga breathing techniques) on decreasing speech disfluencies, decreasing anxiety, and improving self-perceptions related to stuttering in adults. It was hypothesized that regular yoga practice would significantly reduce disfluent speech, concomitant disfluent behavior, and feelings of anxiety over the course of the study. While speech –language pathologists (SLPs) may use relaxation methods (meditation, biofeedback, and yoga) to assist treatment of a variety of communication disorders, there is a lack of scientific evidence validating the effectiveness of yoga, as information is based on theoretical assumptions. Empirical studies with statistical data are lacking. From 1972 to 2002, only 18 out of 42 studies examining relaxation methods and stuttering were empirically based (Stuck, Rigotti, & Ludtke, 2002). In the October 15, 2005 edition of the Journal of Speech, Language, and Hearing Research, 43, 2006, 159, it was used to treat PWS. The article teaches, and be scientifically tested (Subramanian & Prabhu, 2005). The present study was developed to investigate effects of yoga on stuttering severity, perceptions about stuttering, and anxiety before and after participating in treatment.

METHODS

Subjects

Participants were recruited through local (Philadelphia and South Jersey) NSA (National Stuttering Association) monthly meetings and the regional NSA yahoo e-mail message board. Two adult females and two adult males volunteered to participate. The participants' ages were 39, 50, 57, and 63 years (Mean = 52.25 yrs./ SD = 10.31 yrs.). All participants were English-speaking, Caucasian, and living in the Philadelphia metropolitan area.

Data from the Stuttering Severity Instrument-4 (SSI-4) (Riley, 2009) was used to determine the severity level of disfluent speech and concomitant behaviors. Of the four participants, 2 subjects were classified as having mild disfluent speech and two had moderate disfluent speech. All of the participants were new to yoga prior to participating in this study. All of the participants had received intermittent speech therapy in the past and reported stuttering since childhood. No one received additional speech/language services during the course of the study. There was no history of any neurological, cognitive, cardiac, vision, or hearing problems in any of the participants.

Procedures

Baseline data was collected by the authors of this study with guidance and supervision by a certified SLP. During initial data collection, a case history, the Overall Assessment of the Speaker’s Experience of Stuttering (OASES) (Yaruss & Quesal, 2008) were administered. Each participant was audio-recorded during the administration of the SSI-4 to ensure accuracy and reliability. Scoring was conducted by two individuals for interrater comparisons, graduate students in La Salle’s SLHS Program and a certified, licensed SLP. Participants then attended weekly 1-hour group classes at a reputable yoga studio in Philadelphia (Hawthorne Yoga and Reiki). All six classes were led by a certified yoga teacher (CYT). Throughout the course of treatment, participants were directed to complete various pranayama (yoga breathing) techniques and simple poses with various breathing techniques. Participants were instructed to engage in at least 10 minutes of daily practice on their own time. Written instructions were provided to each participant by the CYT along with a DVD to support practice of the techniques demonstrated in class. A daily practice log was recorded to provide the dates and times participants engaged in self-practice. At pre- and post-test points in time, the SSI-4, OASES, Burns Anxiety Inventory, and a daily practice log were collected to calculate the number of hours practiced each week. The same measures used for follow-up data will be collected 2 months following the study to determine the third phase of the ABA treatment design.

RESULTS

Results indicated that the greater the practice time and perceived value of treatment, the greater the participants benefited. Participants made gains in all areas following yoga treatment.

Means of Participants Before & After Yoga Sessions:

<table>
<thead>
<tr>
<th>Session</th>
<th>Pre-Yoga</th>
<th>Post-Yoga</th>
</tr>
</thead>
<tbody>
<tr>
<td>Burns Anxiety Inventory</td>
<td>5.5</td>
<td>5.1</td>
</tr>
<tr>
<td>OASES</td>
<td>5 (sd=.45)</td>
<td>4 (sd=.28)</td>
</tr>
<tr>
<td>SSI-4</td>
<td>2.7 (sd=.17)</td>
<td>2.3 (sd=.32)</td>
</tr>
</tbody>
</table>

Results of the SSI-4 indicated that participants reduced their percent syllables stuttered from M = 7.1 (sd=1.7) to M = 5.1 (sd=1.7). Although this did not reach statistical significance, there was a large effect size (d = 1.18). Findings from the Burns Anxiety Inventory revealed a large decrease in the number of items checked off as causing anxious feelings, anxious thoughts, and physical symptoms of anxiety. Anxiety thoughts were significantly higher before yoga treatment (M = 7.0; sd= 4.5) than after yoga (M = 2.7; sd= 3.2) as indicated by a significant paired t-test, t(3) = 5.58, p = .011; d = 1.10 (large effect). On the OASES, participants indicated positive changes in the general perception of their impairment with improved reactions to their stuttering, reduced difficulties about speaking in daily situations, and improved satisfaction with their quality of life related to communication. Overall perceptions of speakers' experiences of stuttering were significantly more negative before yoga treatment (M = 2.70; sd= 2.22) than after yoga (M = 2.32; sd= 1.17) as indicated by a significant paired t-test, t(3) = 6.01, p = .004, d = 1.93 (large effect).

CONCLUSION

Overall, participants in this study decreased their syllables stuttered from 7.1% to 5.1%. Their SSI-4 severity ratings went from a mean of 2.5 (mild/moderate), to 1.5 (very mild/mild). Participants also reduced their anxious thoughts and improved their perceptions and experiences about communication. The most successful of the four participants was the one who attended all 6 formal classes and practiced on a daily basis. She expressed great value from participating in the study. Yoga treatment (pranayama) positively influenced the lives of all people in this study. Given the small sample size, additional research is recommended to further substantiate treatment.

REFERENCES


