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The Influence of Self-Disclosure on School-Age Children's Perceptions of Children Who Stutter

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Abstract

Purpose: The purpose of this study was to investigate whether school-age observer perceptions of children who stutter varied based upon the presence or absence of a self-disclosure statement. The secondary purpose was to determine if school-age observer perceptions were susceptible to the same gender bias observed in adult males versus females who stutter.

Method: Observers (N=130) were randomly assigned to view two of four possible videos (i.e., male self-disclosure, male no self-disclosure, female self-disclosure, and female no self-disclosure). Immediately after viewing both videos, observers completed a survey assessing their perceptions of the speakers.

Results: Observers were significantly more likely to select self-disclosure videos as more friendly and they reported being less distracted when they were viewing videos in which the speakers self-disclosed, when controlling for observer and speaker gender. Additionally, when controlling for self-disclosure and observer gender, observers were more likely to choose the female speaker as more friendly and intelligent compared to the male speaker and they were also more likely to select the male speaker as more unfriendly and unintelligent compared to the female speaker.

Conclusion: Results from this study lend further support regarding the effectiveness of self-disclosure as a technique that children who stutter can employ in order to positively influence listener perceptions.

Keywords: Stuttering; Fluency disorders; Children; Self-disclosure

Introduction

Stuttering is a multifactorial disorder characterized by an atypical disruption in the forward flow of speech [1]. Although persons who stutter do not differ from persons who do not stutter in terms of personality and intelligence, negative stereotypes have been found to persist across a variety of populations, including speech-language pathologists [2-6], teachers [7-10], university students [11], and parents [9,12]. Additionally, and, of particular relevance to the present study, school-age children also appear to view persons who stutter negatively [13].

Franck et al. [13] investigated the perceptions of fourth and fifth grade students (ages 9-11 years) towards persons who stutter by having them view a video of an adult reading a poem fluently and a video of the same adult producing stuttering-like disfluencies while reading the same poem. The students then rated the speaker on intelligence and personality traits. The findings indicated a significant difference between the two readings, with the speaker being rated more negatively for both personality and intelligence characteristics when he produced the passage disfluently as compared to when he produced the passage fluently.

Similarly, Hartford et al. [14] examined children's (ages 6-13 years) perceptions of persons who stutter by comparing ratings of a fluent adult speaker to ratings of the same adult producing simulated stuttering while telling a short story. The children responded to a series of questions regarding positive and negative qualities about the speaker after listening to the two audio recordings. The results revealed that the children evaluated the disfluent audio recording more negatively than the fluent audio recording, with older children (ages 8-13 years) assigning more negative ratings than younger children (ages 6-8 years).

Although the studies by Franck et al. [13,14] did not investigate children's perceptions of other children who stutter, as the speakers in the stimulus recordings for both studies were adults who stutter, the findings suggest that children hold negative perceptions of persons who stutter. In fact, negative peer perceptions toward school-age children who stutter have been documented [15,16]. Moreover, children who stutter are uniquely vulnerable to teasing and bullying by peers [17-22] are less socially accepted, and are less likely to be viewed as leaders [17,18]. Also, children who stutter are often perceived to have difficulty fitting in at school [23], and may be selected as a friend less often than children who do not stutter [14]. Taken together, these findings indicate that children do indeed have negative perceptions of peers who stutter. Thus, the next logical consideration is how children who stutter can best navigate this apparent stereotype threat.

Steele et al. [24] define stereotype threat as the danger of pervasive negative misperceptions about a particular group that leads to individual members of that group not reaching their potential.

Previous research [25] has suggested that the formulation of negative stereotypes regarding persons who stutter evolve for at least two reasons. First, the observer is projecting the anxiety, nervousness, and/or uncertainty s/he experiences during moments of disfluency and assumes that those same feelings apply to the person who stutters during instances of stuttering. The second reason is that the observer feels anxious and uncomfortable when s/he is listening to a person who stutters and assumes that the speaker who stutters is feeling the same way. Despite research indicating that atypical nervousness and/or anxiety are not causal contributors to stuttering [26] the stuttering stereotype persists. To minimize the negative and inaccurate perceptions towards persons who stutter, speech-language pathologists encourage clients who stutter to self-disclose the fact that they stutter when engaging with new communication partners.

Self-disclosure has been suggested as a strategy for persons who associate with groups at risk for stigmatization with the outcomes indicating that disclosing to others leads to self-empowerment and decreases vulnerability to the stereotype threat [27,28]. Although empirical evidence is needed, self-disclosure should presumably provide the same benefits to persons who stutter. Research completed thus far demonstrates that this strategy can positively influence both child and adult perceptions of an adult who stutters [29-31]. However, to date, no studies have explored the impact on child observers when children who stutter self-disclose.

Observers attribute more favorable ratings on intelligence, personality traits (e.g., sincere, likeable, trustworthy, sociable, emotionally adjusted, etc.), and appearance to those who acknowledge their stuttering [29]. Self-disclosure of stuttering has been noted to positively impact observers' perceptions of persons who stutter by reducing observer discomfort and uncertainty, thereby putting the observer at ease and promoting social interaction. Through acknowledgment of the speaker's stuttering during the initial interaction, the observer becomes more comfortable and responds more positively to the person who stutters. This improvement in observer reaction is likely to minimize the individual who stutters' expectation of an unfavorable response [30,31] and allow the person who stutters to prevent or overcome social barriers [29].

In fact, Healey et al. [32] reported that although there were no significant overall differences in ratings on a series of six personality traits (i.e., sincere, likeable, trustworthy, friendly, shows character, is emotionally well adjusted) for persons who stutter who self-disclosed versus those who did not, more favorable ratings were given when self-disclosure occurred at the beginning of the monologue as opposed to the end. Lincoln et al. [33] replicated the results of Haley et al. [32], and also concluded that the use of a self-disclosure statement at the beginning of an interaction had the most positive impact on listener perceptions. These outcomes suggests that, when used at the beginning of a communicative interaction, self-disclosure may be helpful in reducing negative perceptions of persons who stutter.

Lee et al. [34] investigated the effects of self-disclosure (termed "self-acknowledgment") on observer perceptions of persons who stutter. They attempted to extend past findings and explain contradictions by completing two distinct experiments. In the first experiment, the participants viewed one of the following conditions: 1) the speaker stuttered and self-disclosed, 2) the speaker stuttered but did not self-disclose; 3) the speaker stuttered and employed stuttering modification, or 4) the speaker stuttered, self-disclosed, and used stuttering modification. In the second experiment, participants were provided with direct comparisons of a speaker who stuttered and self-disclosed versus a speaker who stuttered but did not self-disclose. Significant findings were only noted in the observer perceptions for the experiment that provided a direct comparison of the speaker self-disclosing versus the speaker not self-disclosing. The self-disclosure condition was rated moderately more favorably than the condition with no self-disclosure. Given that comparison of no self-disclosure and self-disclosure was needed to elicit significantly different perspectives regarding the speaker, the authors argued that the use of self-disclosure does not appear to be a practical strategy when aiming to shift observer perceptions. Lee et al. [34] further stated that perhaps the speaker is the one who receives the most benefit as the act of acknowledging stuttering indicates acceptance and understanding.

More recently, Byrd and colleagues examined the influence of self-disclosure when using a neutral statement, as it is possible that the previous lack of significance reported by Healey et al. [32] may have been attributed to the apologetic nature of the statement [35]. Additionally, Byrd et al. (in press) included both a female and a male speaker who stutters, given that there is potential for female women who present with disability to be at unique risk for discrimination because of the stereotype threat associated with their gender coupled with that of their disability [36]. Results suggested that perceptions of persons who stutter were positively influenced by the use of a self-disclosure statement. Observers were more likely to rate both male and female speakers who stutter positively and to make more positive comments about the speaker when a self-disclosure statement was present as compared to the condition where the speaker did not self-disclose. They also found that use of self-disclosure was impacted by gender bias. Observers were more likely to rate males more positively than females, regardless of the presence or absence of a self-disclosure statement. Byrd et al. (in press) state that their results lend further support to the use of self-disclosure for adults who stutter as a clinical tool to positively influence the perceptions of observers. Results further suggest that adult females who stutter may be uniquely vulnerable to being perceived negatively given their association with a stigmatized gender group coupled with the stigmatization of stuttering. Whether or not this dual discrimination exists for female children who stutter is of particular relevance to the present study.

Many stuttering treatment programs encourage persons who stutter to accept, discuss, reveal, and confront their stuttering, including sharing their stuttering openly with observers for desensitization purposes and to decrease fear and tension [30,31,37]. In addition to improving observer perceptions, the act of self-disclosure can facilitate the person who stutters' acceptance of stuttering and can also decrease anxiety associated with stuttering [32]. Although desensitization has long been used in stuttering intervention [38], the use of desensitization strategies (such as self-disclosure) for treatment of children who stutter has been investigated less thoroughly. To these authors' knowledge, the only available evidence regarding the utility of purposeful self-disclosure for children who stutter is presented in a single subject case study conducted by Murphy et al. [39]. However, it has been well documented that negative reactions of others in the child's environment can have a significant effect on his or her experience of stuttering [17-20]. Not only can these negative experiences adversely affect the child's communication abilities, but they can also hinder their progress in therapy [40]. Purposeful self-disclosure can provide children with a means of effectively managing their stuttering by minimizing the negative stigma of stuttering and by overcoming their own negative reactions to their speaking difficulties. Additionally, as presented in the case study conducted by Murphy et al.

[39], purposeful self-disclosure is conducive to overcoming fears associated with stuttering.

In summary, the act of self-disclosure facilitates the child's ability to acknowledge, in an open, straightforward manner, the fact that s/he is an individual who stutters. This act improves observers' perceptions and serves as a desensitization mechanism for the child who stutters. This desensitization process helps the child who stutters to overcome the fear of stuttering and minimize negative self-reactions to speaking difficulties, which contribute to the development of a positive communication attitude. Given the evidence that suggests children who do not stutter have negative perceptions of their peers who stutter, coupled with the evidence that self-disclosure positively impacts observer perceptions of adults who stutter, it is important to investigate whether the benefits of self-disclosure observed with adults who stutter will also be achieved when employed by children who stutter.

The primary purpose of the present study is to examine the effects of self-disclosure on school-age observers' perceptions of children who stutter. Specifically, this study aims to investigate whether observer perceptions will vary based upon the presence or absence of a self-disclosure statement prior to the speaker initiating his or her monologue. The secondary purpose is to determine if observer perception is susceptible to the same gender bias observed in adult males versus females who stutter. The influence of self-disclosure on child perceptions will be examined by presenting individual stimulus recordings of both a male and a female child who stutters reading identical passages with or without a self-disclosure statement. We hypothesize that the use of a self-disclosure statement will produce significantly more positive observer perceptions as compared to no self-disclosure. We further hypothesize that gender bias will only be present when self-disclosure does not occur. Findings are expected to lend empirical support to the effectiveness of self-disclosure as a strategy for children who stutter to positively impact observer perceptions. Additionally, it is anticipated that the findings of the present study will lend empirical support to the clinical utility of self-disclosure in the treatment of school-age children who stutter as a way to promote and enhance successful communication interactions and interpersonal relations.

Method

Prior to participation in the experimental tasks, participants completed a pre-screener word-definition task (Appendix A) in order to ensure that all of the personality trait vocabulary used in the survey was familiar to all participants. Then, participants viewed two of four possible videos: 1) male child who self-discloses, 2) male child who does not self-disclose, 3) female child who self-discloses, and 4) female child who does not self-disclose. Immediately following the viewings, participants were asked to complete a survey questionnaire (Appendix B). Once the videos and survey were completed, the participants and their parents were provided a debriefing form that contained a complete and detailed description of the purpose of the study emphasizing the practical implications and potential advantages of self-disclosure.

Video stimuli

Speakers: The male child who stutters was 7 years, 5 months old at the time of the filming and had been stuttering since 3 years of age. He was enrolled in speech-language pathology services at the time of the filming and was well-practiced in the technique of voluntary stuttering. The female child who stutters was 9 years, 7 months old at the time of filming and had also been stuttering since 3 years of age. She was also enrolled in speech-language pathology services at the time of filming and was competent in her use of voluntary stuttering. Both children were native English speakers. They were chosen based on their familiarity with and proficiency in using voluntary stuttering, as well as their similarity in appearance for age and maturity. Neither individual presented with regional accents and both demonstrated normal articulation, vocal quality, resonance, nasality, speech rate, and speech loudness as judged by a certified speech-language pathologist.

Recording equipment: The stimulus videos were recorded by a staff member at the first author's university, who had advanced editing and production skills as well as access to state of the art filming equipment. The videos were recorded with a Panasonic AG-HMC150, along with a Sennheiser EW 100 G3 wireless microphone system. The videos were edited using Final Cut Pro 7.0 on an Apple Mac Pro and then exported as Quicktime movie files using the H.264 video codec. The videos were then uploaded to a secure content sharing platform (i.e., 'UT Box, Inc.') that could only be accessed by IRB-approved personnel.

Setting: The male and female child who stutters were filmed individually, sitting in the same blue canvas chair in the same room directly facing the camera. Each child was seated at the head of a long, wooden table and in front of a plain white wall. Just above the child, the lower portion of a two-way mirror was in partial view (although no significant reflections were captured in the video). In order to eliminate potential distractions, nothing else was visible in the frame.

Filming: The stimulus videos included video-recordings of the speakers reading an adapted version of the Rainbow Passage [41] (Appendix C). The script of the passage, excluding the self-disclosure statement, was modified with the following voluntary stuttering-like disfluencies embedded and typed in red for the speakers to easily identify: single sound repetitions (7.8%), audible sound prolongations (10.8%), and inaudible sound prolongations (5.4%), so that the total number of stutters per total number of words was 24.1%. Both speakers reviewed and rehearsed reciting the passage numerous times prior to filming in order to familiarize themselves with the script. The speakers were instructed to incorporate the voluntary stuttering-like disfluencies (of type and duration/iteration) as indicated in the modified passage. They adhered to the script as closely as possible, but due to occurrence of natural moments of stuttering, the male and female stimulus videos differed slightly from the script, and thus from each other. However, post-production analysis of the videos demonstrated that the percentages for types of stutters were comparable (3% difference) between the male and female stimulus videos (Table 1).

Each speaker was filmed from the waist up, alone in the frame, and directly facing the viewer. Each recording began with the speaker greeting the viewer, introducing themselves by their first name, and informing the viewer that they would be reciting a passage about rainbows. Each speaker then provided the following self-disclosure statement: "I sometimes stutter, so you might hear me repeat words or sounds, but if you have any questions or want me to say anything again, just let me know." After delivering this statement, the speakers went on to read the modified passage script. The speakers' speech rates were perceptually judged by the authors to be within the normal range for their age.

A slight variation in the type and frequency of secondary behaviors that co-occurred during stuttering moments was observed between the

two speakers. To quantify the speakers' secondary behaviors, 14 trained undergraduate research assistants analyzed the stimuli videos using the physical concomitants section of The Stuttering Severity Instrument for Adults and Children – Fourth Edition (SSI-4; Riley, 2009). Each speaker was rated on a scale of 0 to 5 (0=none, 1=not noticeable unless looking for it, 2=barely noticeable to casual observer, 3=distracting, 4=very distracting, 5=severe and painful looking) on the following behaviors: 1) distracting sounds, 2) facial grimaces, 3) head movements, and 4) movements of the extremities. An average score across the four physical concomitant types was computed for each rater and a total score averaged across raters was obtained for each speaker. For the male speaker, the average physical concomitants total score was 2.2 and for the female speaker it was 1.7.

	Male	Female
Single-sound repetitions (SSR)	8.40%	8.40%
Whole word repetitions (WWR)	0.60%	0.60%
Audible sound prolongations (ASP)	10.80%	13.90%
Inaudible sound prolongations/blocks (ISP)	4.80%	4.20%
Other*	0%	0.60%
Total stuttering-like disfluencies per total words in passage	24.70%	27.70%
*Female speaker produced a disfluency cluster, in which a word was produced with both a SSR and ISP.		

Table 1: Percentages of stuttering-like disfluencies in stimulus passages for the male and female speakers.

The video that did not include a self-disclosure statement was created by removing the self-disclosure statement using advanced editing software to prevent the viewer from visually detecting this alteration. Thus, the self-disclosure and no self-disclosure stimulus videos were identical with the exception of the presence of the self-disclosure statement.

Survey

A survey questionnaire, consisting of two sections, was completed by the participants after watching the videos. The first section included 10 three-alternative forced choice questions (including an option for neutrality) that examined the viewer's perception of the speaker for various personality traits. For example, for the question "In which tape do you think the speaker appears friendlier?" the three possible choices were a) Tape 1, b) Tape 2, c) No difference. The following personality traits were included in the survey items: friendly, outgoing, intelligent, confident, more/less distracting, unfriendly, unintelligent, insecure, and shy. The second section consisted of 13 subjective open-ended questions to obtain further information about the participant's prior experience with individuals who stutter and stuttering in general. For example, a question would be "Have you ever personally known someone who stutters?" This section also prompted the participant to provide one to three comments about their perceptions of the speaker in each tape, as well as the speaker's communication abilities in each tape. Finally, a section was provided for the participants to include any additional comments related to the experiment. Detailed information about the survey is presented in Appendix B.

Participants

Participants were recruited via e-mail correspondence and by word of mouth from the first author's university and surrounding area. Approval from the first author's university Institutional Review Board was received and written and verbal informed consent from the parent as well as written and verbal informed assent from the child were obtained for each participant. All participants were required to meet the following criteria for inclusion in the present study: a) native English-speakers; b) between the ages of 6 years; 0 months and 12 years; 11 months; c) have normal (or corrected-to-normal) vision and hearing as determined per self-report (and/or parent report); and d) no presence of a speech or language disorder. A total of 130 (N=54 males; 76 females) participants were included in this study. Participants and their parents were given a general description of the purpose of the study prior to participation, but the specifics were withheld until a debriefing session immediately following completion of the survey so as to avoid any influence of bias.

Procedures

Participants met with a trained research assistant at a location of the parent's choosing, and were taken to a quiet room free from distractions. The participant was informed that s/he would be viewing two short videos and then asked to complete a short survey concerning the videos. Prior to viewing the recordings, the participants completed the pre-screener word-meaning exercise followed by a 15 to 30 minute break. This pre-screener was administered to ensure that the participants understood the meaning of the traits included on the survey. The pre-screener consisted of nine vocabulary words taken directly from the survey questionnaire with three-alternative forced choice answers per word. The child was asked to choose the best definition for each word (Appendix A). If the child completed the pre-screener with 100% accuracy on the first trial, a 15-minute break ensued (e.g., reading a story, playing with toys). If the child did not complete the pre-screener with 100% accuracy on the first trial, a subsequent trial was held after a brief teaching period, followed by a 30-minute break. The break was incorporated into the study design to avoid the influence of potential bias caused by exposure to the survey's vocabulary immediately prior to viewing the videos.

After completion of the pre-screener and the subsequent break time, the participant viewed two of the four possible recordings on a laptop computer while sitting in a quiet room. The brightness and volume of the video were adjusted to allow for maximum viewing quality. The selection of the recordings viewed by each participant was counterbalanced relative to speaker gender and self-disclosure so that every possible video pairing was administered. There were 12 total possible video order pairings (e.g., "male self-disclosure" with "female no self-disclosure" or "female no self-disclosure" with "female self-disclosure", etc.)

After the participant completed the two viewings, the researcher asked him or her to read the directions of the survey thoroughly and answer the questions to the best of his or her ability. The researcher sat quietly in the corner reading to allow the participant to complete the survey without distraction or discomfort. Parents and/or the student researcher were permitted to assist the child participant with the completion of the survey if the child demonstrated a need for assistance, but were instructed to provide only neutral guidance that would not influence the child's responses. Such assistance included reading the survey questions and answer choices aloud to the

participant with neutral intonation, and recording the child's verbal responses verbatim onto the survey. The survey portion of the experiment was audio recorded to allow for post-session review of the child's verbal responses by the researcher to ensure that the responses were recorded completely and accurately. This recording was also reviewed to confirm that participant responses were not influenced by his/her parent or the researcher. The survey was completed in 15 minutes for most participants, but extended to 30 minutes for the youngest participants as they required more time to complete the survey. Following survey completion, the participant and his or her parent were provided with a debriefing form, which contained extensive details about the specific purpose of the project. Any questions the participant and/or the parent had regarding the study were addressed during this time.

Study design and analysis

The current study design purposefully differed from the designs used in past research of listeners' perceptions of persons who stutter. Two questions were used to explore each personality trait (e.g., "friendly" and "unfriendly") instead of a bipolar adjective rating scale in order to distinctly explore listeners' negative and positive perceptions of the personality traits of people who stutter. Contrary to the bipolar adjective scale (1=unfriendly to 5=friendly), which may be seen as subjective and relative to the participant's internal "friendliness scale", participants were asked to select one tape over the other or indicate no difference in an attempt to place the variables (i.e., "friendly" and "unfriendly") on the same internal scale and also to allow participants to report no difference between the video recordings. In the current study, participants viewed 2 of 12 possible video combinations (e.g., "male self-disclosure" and "female self-disclosure" or "male self-disclosure" and "male no self-disclosure", etc.). That is, some participants saw two videos that contained a self-disclosure statement while other participants watched a video that contained a self-disclosure statement and one that did not contain a self-disclosure statement while some others watched two no self-disclosure videos. Therefore, the option of "no difference" was also provided as a verification of the absence of differences.

Generalized Estimating Equation (GEE) was used in order to analyze the quantitative data of the survey. The GEE model allowed for analysis of responses provided in the fractional factorial design of the current study wherein participants watched only two of the four possible videos. The odds of observer preference for one video over another are reported below. Predictors in this study included gender of the speaker, gender of the observer, presence of self-disclosure statement, and prior experience with stuttering. Statistical analyses were run using IBM SPSS Statistics Version 23. Free responses to the final three questions of the second section of the survey were verbatim transcribed and descriptively analyzed.

Results

Friendlier

Observers were 0.7 times more likely to rate speakers who self-disclosed as friendlier than speakers who did not self-disclose, regardless of speaker and observer gender (OR=0.314, Wald Chi-Square=6.197, df=1, p=0.013). Additionally, observers were 2.7 times more likely to choose the female speaker as friendlier compared to the male speaker, controlling for self-disclosure and observer gender (OR=2.720, Wald Chi-Square=5.372, df=1, p=0.02).

Outgoing

There was not a greater likelihood of observers rating speakers who self-disclosed as compared to speakers who did not self-disclose as more outgoing, when controlling for observer and speaker gender (Wald Chi-Square=0.996, df=1, p=0.318). Similarly, participants were not more likely to rate the male speaker as more outgoing than the female speaker when controlling for self-disclosure and observer gender (Wald Chi-Square=0.005, df=1, p=0.944).

Intelligent

Observers were 2.8 times more likely to select the female speaker as more intelligent compared to the male speaker, when controlling for self-disclosure and observer gender (OR=2.771, Wald Chi-Square=6.941, df=1, p=0.008). There was not a greater likelihood in choosing speakers who self-disclosed as more intelligent compared to speakers who did not self disclose, when controlling for observer and speaker gender (Wald Chi-Square=0.120, df=1, p=0.729).

Confident

Observers were not more likely to choose speakers who self-disclosed as being more confident compared to speakers who did not self-disclose, when controlling for observer and speaker gender (Wald Chi-Square=0.377, df=1, p=0.539). There also was not a greater likelihood of selecting the male speaker as more confident compared to the female speaker, when controlling for self-disclosure and observer gender (Wald Chi-Square=0.392, df=1, p=0.531).

More distracting

Observers were not more likely to indicate that they were more distracted when the speaker did or did not self-disclose, while controlling for observer and speaker gender (Wald Chi-Square=0.443, df=1, p=0.506). In addition, there was not a greater likelihood of observers indicating they were more distracted when viewing the male speaker as compared to the female speaker, when controlling for self-disclosure and observer gender (Wald Chi-Square=2.526, df=1, p=0.112).

Unfriendly

Observers were 0.7 times more likely to select the male speaker as unfriendly compared to the female speaker, when controlling for self-disclosure and observer gender (OR=0.295, Wald Chi-Square=7.300, df=1, p=0.007). Observers were not more likely to select the speaker who did not self-disclose as more unfriendly as compared to the speaker who did not self-disclose, when controlling for observer and speaker gender (Wald Chi-Square=2.196, df=1, p=0.138).

Shy

Observers were not more likely to select the speaker who did not self-disclose as more shy compared to the speaker who self-disclosed, when controlling for observer and speaker gender (Wald Chi-Square=1.324, df=1, p=0.250). In addition, there was no greater likelihood of selecting the female speaker as being more shy as compared to the male speaker, when controlling for self-disclosure and observer gender (Wald Chi-Square=2.387, df=1, p=0.122).

Unintelligent

Observers were 0.8 times more likely to choose the male speaker as unintelligent compared to the female speaker, regardless of self-disclosure and observer gender (OR=0.236, Wald Chi-Square=10.375, df=1, p=0.001). There was no significant difference in the observers' selection of which speaker was perceived as more unintelligent based on the presence or absence of a self-disclosure statement, when controlling for observer and speaker gender (Wald Chi-Square=0.283, df=1, p=0.595).

Insecure

There was no significant difference in the observers' choice of which speaker was perceived as more insecure based on use of a self-disclosure statement, when controlling for observer and speaker gender (Wald Chi-Square=0.479, df=1, p=0.489). In addition, no significant difference was found in choosing the male versus the female speaker as being insecure, when controlling for self-disclosure and observer gender (Wald Chi-Square=0.340, df=1, p=0.560).

Less distracting

Observers were 0.5 times more likely to choose self-disclosure videos as less distracting compared to no self-disclosure videos, while controlling for observer and speaker gender (OR=0.512, Wald Chi-Square=3.957, df=1, p=0.047). There was no significant difference in observers' selections of which speaker was perceived as less distracting based on the speaker gender, when controlling for self-disclosure and observer gender (Wald Chi-Square=1.384, df=1, p=0.239).

Influence of prior experience with stuttering: Fifty of 130 participants (38%) reported that they had met someone who stutters in their lifetime. In addition, 36 of those 50 participants reported that they personally knew someone who stutters for at least half a year (range of period of time participants knew someone who stutters was between 0.5 years to 9 years). Furthermore, 16 of 130 participants (12%) stated that they have had some type of formal experience with stuttering (e.g., at school), whereas 28 participants (22%) reported that they have had some type of informal experience with stuttering (e.g., watching a movie or reading a book about stuttering). Sixteen of 130 participants (12%) reported that they have stuttered in the past, with two participants reporting that they stuttered at the time of the study, five participants reporting that they sometimes stutter, and nine participants reporting that they did not stutter at the time of the study. Due to the limited number of participants who indicated that they have stuttered at some point in their life and the absence of parental and/or speech-language pathologist confirmation of stuttering, self-report of stuttering was not included in the quantitative analysis.

Based on GEE analyses using prior experience with stuttering as a factor, participants were not more likely to rate speakers who self-disclosed as friendlier (Wald Chi-Square=0.348, df=1, p=0.555), more outgoing (Wald Chi-Square=0.719, df=1, p=0.397), more intelligent (Wald Chi-Square=3.957, df=1, p=0.204), more confident (Wald Chi-Square=0.509, df=1, p=0.475), or less distracting (Wald Chi-Square=0.318, df=1, p=0.573) compared to the participants who reported no prior experience with stuttering.

Qualitative results

In the final section of the second part of the survey, participants were asked to provide comments about their perceptions of the speaker and his or her communication skills in each video recording. Variability was present in the observers' responses; however, most participants characterized the speakers who used self-disclosure statements as "more intelligent", "smarter", "more confident", "calm", "more courageous", "more prepared", "more social" and "nicer". Conversely, when describing the speakers who did not use a self-disclosure statement, observers made comments such as "more nervous", "less courage", and "hard to understand".

When observers were asked to provide comments about the speakers' communication skills, they were more likely to include positive comments about the speaker who used a self-disclosure statement.

For example, participants stated that the speaker who self-disclosed "stuttered less", that they "…could understand this person better even though he stuttered", that "he was nicer because he told me about stuttering". On the contrary, participants stated that the speaker who did not self-disclose "kept on repeating words, not that good communication skills," "he was more nervous," "I think the child needs to control his stuttering for it is hard to understand him," and "if that person stutters how can he communicate with other people?"

In summary, observers were more likely to select speakers who self-disclosed compared to speakers who did not self-disclose as friendlier and more likely to report that they were less distracted when viewing them compared to speakers who did not self-disclose, when controlling for speaker and observer gender. Additionally, observers were more likely to choose female speakers as friendlier and more intelligent and male speakers as more unfriendly and unintelligent, when controlling for self-disclosure and observer gender. Furthermore, based on observers' comments, observers perceived speakers who included a self-disclosure statement in their videos as more confident, nicer, easier to understand and also reported that they stuttered less. Speakers in videos that did not include self-disclosure statements were qualitatively perceived as more nervous, more difficult to understand, and that they stuttered more.

Discussion

The primary purpose of the present study was to explore whether self-disclosure influences observer perceptions of the person who stutters when the observer and the speaker who stutters are both children. A secondary purpose was to investigate whether the child observer perception of self-disclosure was mediated by the speaker's gender. We hypothesized that self-disclosing in an informative, non-apologetic manner at the beginning of a monologue would result in higher positive perceptions than not self-disclosing. We also hypothesized that gender bias would be present only in the absence of self-disclosure.

Influence of self-disclosure

Results from the present study indicated that there are differences in child observers' opinions about speakers' personality traits (e.g., friendly, less distracting) when child speakers self-disclose that they are a person who stutters. Observers were significantly more likely to select the speaker who self-disclosed as friendlier and were also more likely to report they were less distracted when viewing the videos wherein the speaker self-disclosed as compared to the speaker who did not self-disclose. In addition, observers were more likely to perceive the speakers who self-disclosed as "easier to understand" and with "less stuttering." This finding is of critical relevance as participants were

either viewing the same video with only the self-disclosure statement edited out, or they were viewing one of the genders self-disclosing and comparing it to the other not self-disclosing. In either case, there were no significant differences in the percentage of disfluencies produced by the speakers between the two videos and yet observers reported "less stuttering" in the self-disclosure video recordings.

In general, the findings of the present study suggest that children perceive other children who stutter more positively in terms of establishing interpersonal relationships (i.e., friendlier) and also more engaging in their overall communication when they self-disclose (i.e., less distracting). Present findings are consistent with the findings of past research conducted with adults, which suggests that observers prefer to interact with adults who stutter who acknowledge their stuttering. For example, Collins [29] concluded that when a male speaker who stutterers acknowledged his stuttering during an initial interaction, the observer was more comfortable and responded to the speaker more favorably.

Furthermore, the findings of the present study demonstrate consistencies with the findings of Healey et al. [32], who conducted a follow-up study to Collins, et al. [29], that also investigated the impact of self-disclosure on observers' perceptions of an adult who stutters. After viewing one of three possible videos featuring an adult who stutters (one in which the speaker self-disclosed at the beginning of the monologue, another in which the speaker self-disclosed at the end of the monologue, and a third in which no disclosure of stuttering occurred), observers rated a set of six Likert statements related to various character traits. The only statement that was significantly different across the three conditions was that the speaker was perceived to be significantly more friendly when disclosing stuttering at the end of the monologue than when not disclosing stuttering. Although in the present study the self-disclosure statement occurred at the beginning of the monologues, the observers appeared to perceive the speaker as more friendly when self-disclosure occurred as compared to when it did not.

In addition to the aforementioned studies, Lee, et al. [34] also evaluated the impact of self-disclosure on adult observer perceptions, measured by ratings for 21 bipolar adjective pairs related to personality, intelligence, and appearance. Similar to the present study, significant differences were found when participants viewed one video that contained acknowledgment of the stuttering and one that did not, with moderately more favorable responses by observers when disclosure of the stuttering occurred.

Influence of speaker gender

In the present study, observers were more likely to rate female speakers who stutter as having certain positive character traits (i.e., friendlier, more intelligent) compared to male speakers who stutter, regardless of the presence or absence of a self-disclosure statement. Thus, the hypothesis predicting that gender bias would only be present when the person who stutters did not self-disclose was not supported. This preference towards characterizing the female speaker as more intelligent and friendlier compared to the male speaker was in contrast with other studies that favor males over females across multiple disciplines [42-45]. This finding also seems to suggest that the dual discrimination for females may be more applicable to adults. Past studies that examined gender biases included adult participants and not children. In addition, prior studies that investigated children's perception of persons who stutter [13,23] included adult speakers and not child speakers and did not investigate potential gender biases.

Influence of prior experience with stuttering

Results from the present study indicate prior experience with stuttering does not seem to affect child perceptions of children who stutter. That is, observers' opinions about the personality traits and the inclusion or absence of a self-disclosure statement in the videos were not statistically significantly different. These results were in contrast to prior research in adults who stutter, which has indicated that prior experience with stuttering may positively influence observers' perceptions and attitudes toward persons who stutter [46]. However, present findings were in agreement with Byrd et al. (in press), who also reported that past experience with a person who stutters did not mediate observer perceptions. Since prior exposure to stuttering does not consistently seem to play a role in people's perceptions of persons who stutter, it is suggested that children who stutter self-disclose when it seems appropriate to do so regardless as to whether the person they are interacting with has had any prior or ongoing interactions with other persons who stutter.

Clinical considerations and future directions

Data from the present study demonstrate clinicians should not limit their recommendation of use of self-disclosure to adults as the act of self-disclosure may also serve to positively influence observer perceptions of children who stutter. As suggested by Collins, et al. [29], it is plausible that by making an overt statement that acknowledges his/her stuttering, the speaker is able to reduce the level of ambiguity regarding the occurrence of stuttering during a social interaction, thereby improving the likelihood of a favorable response.

In addition, the manner in which the client self-discloses has a significant impact on listener perceptions. Byrd et al. (under review) recently found that the use of a non-apologetic, neutral self-disclosure statement, such as "Hi. My name is Christine and I stutter. You may hear me repeat or prolong sounds and syllables as I speak. If there is anything I say that you do not understand, please let me know and I will be happy to say it again." results in significantly more positive perceptions than use of an apologetic statement (e.g., "Hi. My name is Christine and I stutter. Please bear with me as speaking has always been difficult for me."). However, as Byrd and colleagues also report, clinicians should be aware that when asked to write a self-disclosure statement, clients almost always write one that is apologetic in nature. Instruction with regard to revising their statement to be more neutral in nature, and explanation as to why that is critical, enhanced the positive effects of self-disclosure.

Finally, there is a significant need for additional research with regard to the clinical utility of self-disclosure. Our clinical anecdotal data demonstrate significant benefits; however, further examination of the client and listener perspectives in terms of perceptions as well as physiological responses (e.g., skin conductance, heart rate, respiratory sinus arrhythmia, etc.) are needed in order to further examine client and listener reactions that may or may not reach the level of overt detection of response.

One suggestion for future studies is to include a wider age range of observers in order to examine the potential influence of age in the observers' perceptions of children who stutter given the evidence that suggests children's perceptions of their peers who stutter may become increasingly negative with age [14]. Additionally, in order to gain more insight into observer perceptions, future research should include open-ended follow-up survey questions concerning the viewer's perception of the speaker and his or her communication. These follow-up

questions would need to be worded in such a way that would prevent redundancy with the survey. That is, the open-ended questions should not lead the participant to respond with the vocabulary used in the closed-ended survey questions (e.g., friendlier, more confident, more shy, etc.) so as to provide novel information regarding the observer's perceptions of the speaker. Finally, the relationship between the use of self-disclosure and the impact of stuttering on the person who stutters' communication attitudes and overall quality of life should be considered in future research.

With regards to the general perception of persons who stutter, men have been found to evaluate persons who stutter more negatively than women [47,48]. On the other hand, Dietrich, et al. [49] determined that females rate the personality traits of persons who stutter more favorably than males. Conversely, there are data that have failed to demonstrate differences between male and female observers when evaluating a speaker who stutters [50-53]. These contradictory findings make it difficult to determine whether the gender of the observer uniquely impacts perceptions of persons who stutter. However, Byrd et al. (in press) recently found that adult females who stutter are more vulnerable to negative perceptions whether they do or not self-disclose. Interestingly, the present findings suggest the opposite, as the female speaker was more likely to be rated more positively than the male speaker. Perhaps, this difference can be attributed to the fact that the study by Byrd and colleagues (in press) focused on adults whereas the present study focused on children [54-56].

Conclusion

With regards to fluency disorders, self-disclosure is the purposeful acknowledgment of the fact that one stutters. Self-disclosure has often been used as a tool in stuttering treatment programs to facilitate desensitization to stuttering as well as improve observer reactions to persons who stutter. Past research has demonstrated that self-disclosure can favorably influence observer perceptions of adults who stutter. The present study investigated the influence of self-disclosure on observer perceptions of children who stutter with findings lending support to the notion that self-disclosure positively impacts the child observer's perception of children who stutter. The current study also found gender biases that were contradictory to what is found in adults. Our observers favored the female speaker compared to male speaker, regardless of the presence of a self-disclosure statement. In conclusion, clinicians should encourage children to use self-disclosure as a strategy to positively influence listeners' perceptions.

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