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Does the clinical utility of self-disclosure of stuttering transcend culturally and linguistically diverse populations?

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Abstract

Purpose: Research suggests that self-disclosure can improve listeners' perceptions of stuttering; however, it is unknown whether the effectiveness of self-disclosure transcends culture and language. This study examined the clinical utility of self-disclosure in a culturally and linguistically diverse population: Hebrew-speaking people who stutter in Israel.

Method: The experimental protocol replicated Byrd, Croft et al. Participants ($N=92$ adults in Israel) viewed a video of either a male or female Hebrew-speaking person who simulated stuttering and self-disclosed informatively, apologetically, or not at all. Participants then rated the speaker on ten traits (i.e. friendly, outgoing, intelligent, confident, engaging, distracting, unfriendly, shy, unintelligent, insecure) using a bipolar likert scale.

Result: Results indicated that participants rated the speaker who self-disclosed in a neutral and informative manner as significantly more outgoing compared to the speaker who did not self-disclose at all, supporting the results from Byrd, Croft et al. Additionally, the male speaker was rated as significantly more friendly and outgoing than the female speaker.

Conclusion: This study suggests that self-disclosing in a neutral and informative manner can improve listeners' perceptions of people who stutter similarly across culture and language.

Keywords: *stuttering; self-disclosure; stigma; stereotype threat; cross-cultural*

Introduction

Stuttering is a neurophysiological, multifactorial speech disorder that disrupts the forward flow of speech and affects more than 70 million people worldwide (Kraft & Yairi, 2012). While stuttering is not caused by nervousness or anxiety, people who stutter (PWS) are often mischaracterised as unintelligent, less confident, and less outgoing than people who do not stutter (Betz, Blood, & Blood, 2008; Johnson, 2008). These pervasive stereotypes can lead to discrimination in the social, academic, and vocational settings, as well as shame and embarrassment related to communication (e.g. Boyle, 2013; Boyle & Blood, 2015; Lankman, Yaruss, & Franken, 2015).

The literature suggests that negative perceptions of stuttering transcend ethnic, cultural, and linguistic differences (Daly & Leahy, 2014; St. Louis & Roberts, 2010); however, these perceptions manifest differently across populations, cannot be assumed, and must be considered prior to implementing specific treatments or techniques. While previous studies support the use of self-disclosure as a tool to mitigate stereotype threat for PWS (Byrd, Croft, Gkalitsiou, &

Hampton, 2017; Byrd, McGill, Gkalitsiou, & Cappellini, 2017; Boyle, Milewski, & Beita-Ell, 2018; Mancinelli, 2019), more research regarding the cultural and linguistic sensitivity of this tool is needed.

Perceptions of stuttering across cultures

Studies conducted in the USA, Canada, Portugal, Turkey, Denmark, South Africa, and Nepal show that children and adults, regardless of country or culture, report negative perceptions of stuttering including frustration when listening to PWS and beliefs that PWS are shy, timid, anxious, and unassertive (e.g. St. Louis & Roberts, 2010; St. Louis et al., 2016). Together, these studies demonstrate that PWS around the world experience discrimination, self-stigmatisation, and a negative impact of stuttering on overall quality of life (Boyle, 2013; Freud, Kichin-Brin, Ezrati-Vinacour, Roziner, & Amir, 2017; Lankman et al., 2015; Sakai, Chu, Mori, & Yaruss, 2017).

However, recent research indicates that culture can impact the degree to which stuttering is perceived as negative (St. Louis et al., 2016), why stuttering is

perceived as negative (St. Louis & Roberts, 2010), and the nature of listeners' responses to stuttering (Zhang & Kalinowski, 2012). For example, in a study examining attitudes towards stuttering across five different countries in Europe, St. Louis et al. (2016) found that while some countries demonstrated attitudes towards stuttering that reflected the global mean, other countries reported attitudes that were either more or less severe. These differences highlight varying degrees of negative perceptions of stuttering across culture. In another study comparing attitudes towards stuttering in Canada and Cameroon (St. Louis & Roberts, 2010), respondents from Cameroon reported significantly more belief in a religious or metaphysical cause of stuttering, as well as increased concern regarding religious leaders who stutter, suggesting a relationship between Cameroon's religious values and perceptions of stuttering. Finally, Zhang and Kalinowski (2012) examined listeners' gaze responses to stuttered speech compared to fluent speech across European Americans, African Americans, and Chinese participants. Findings indicated that all cultural groups reduced eye contact when listening to speakers who stutter, revealing listener discomfort across culture and language. However, eye contact aversion patterns differed across groups, suggesting that culture plays a role in how listeners self-regulate and compensate during communicative discomfort.

Taken together, these studies underscore the importance of considering how cultural differences may impact perceptions of stuttering. The present study will focus on the use of a stereotype threat reduction technique in a culturally and linguistically diverse population: Hebrew speakers in Israel.

Perceptions of stuttering in Israel

Similar to other countries around the world, empirical and anecdotal evidence reveal the presence of negative perceptions of stuttering in Israel. In one study, Ezrati-Vinacour, Platzky, and Yairi (2001) assessed kindergarten and first-grade children's perceptions of disfluent speech by asking whether they would want to be friends with the fluent or disfluent character. Results indicated that children as young as four demonstrated a preference for the fluent character over the character who stuttered, suggesting the presence of negative perceptions of stuttering even among children.

Anecdotal evidence suggests that these biases can persist into adulthood and are present in Israel's public sphere (Goldstein, 2019; Landau, 2020). For example, in Israel's most recent election, a prominent political leader mocked an opponent for his disfluent speech, which was labelled as "stuttering" and attributed to mental instability (Landau, 2020). Public misconceptions related to stuttering are often addressed by the Israel Stuttering Association (AMBI), an organisation that aims to increase public

knowledge about stuttering and increase psychosocial support for PWS through self-help groups and conferences. Through its advocacy efforts and professional development opportunities for speech-language pathologists, AMBI promotes equal participation and respect for PWS in Israel. On *StutterTalk*, a podcast about stuttering, an AMBI representative recently shared that perceptions of stuttering in Israel are "mixed", explaining that while some listeners exhibit acceptance of and respect for PWS, others are "intolerant" and view stuttering as a "symptom of inferiority of various types" (Goldstein, 2019).

Stuttering research in Israel broadly resembles global efforts to explore multifaceted issues related to stuttering, such as physiological origins and psychosocial factors; however, speech-language pathologists and researchers have historically considered stuttering as an "enigma" and particularly challenging to address in such a multicultural and linguistically diverse society (Ezrati-Vinacour & Amir, 2005; Ezrati-Vinacour & Weinstein, 2011). Research conducted in Israel's stuttering population suggests that PWS report a negative impact of stuttering on their daily communication. In one study, 91 Hebrew-speaking PWS completed a measure indicating the degree to which stuttering interfered with communication-related thoughts, feelings, and actions (Freud et al., 2017). Results indicated a moderate impact of stuttering on quality of life, suggesting a need for a stigma reduction technique to reduce these negative impacts among Hebrew-speaking PWS.

The use of self-disclosure to reduce the impact of stuttering

Self-disclosure, the act of revealing information about one's self to a listener, has been used as a tool to combat negative stereotypes and increase positive listener perceptions across a variety of stigmatised conditions, such as HIV (Poindexter & Shippy, 2010), mental health disorders (Corrigan, Kosyluk, & Rusch, 2013), and stuttering (Byrd, Croft, et al., 2017; Byrd, McGill, et al., 2017; Boyle et al., 2018; Mancinelli, 2019). As indicated by previous research, potential benefits of self-disclosure include increased self-esteem, decreased worry and concern over the stigmatised condition, and increased resiliency, psychosocial support, and quality of life (e.g. Boyle et al., 2018; Corrigan et al., 2013).

With regards to stuttering, studies suggest that self-disclosing yields more positive listener perceptions than not self-disclosing, and that doing so at the beginning of the interaction is more effective than self-disclosing at the end (Byrd, McGill, et al., 2017; Healey, Gabel, Daniels, & Kawai, 2007). Differences in gender have also been found relative to self-disclosure; specifically, Byrd, McGill, et al. (2017) found that a male speaker who stutters was rated significantly more positively than a female speaker, regardless of the self-disclosure condition.

Research also suggests that the nature of the self-disclosure statement yields distinct outcomes. Byrd, Croft, et al. (2017) examined the influence of apologetic versus informative self-disclosure statements on listeners' perceptions of PWS. In one condition, the speaker disclosed as a PWS and apologised to the listener (i.e. "bear with me"). In a second condition, the same speaker disclosed and provided a brief description of stuttering (i.e. "you might hear me repeat sounds or words"). A third condition featured the speaker who stuttered, but did not self-disclose. Each participant viewed only one condition. The speakers and stuttering frequency were controlled across conditions, with self-disclosure statement as the only changing variable. Results indicated that participants who viewed the speaker who self-disclosed neutrally and informatively rated that speaker as more friendly, intelligent, and engaging than self-disclosing apologetically or not at all, suggesting that informative self-disclosure can help PWS mitigate the stuttering stigma and stereotype.

To date, to the authors' knowledge, only one study has examined the use of self-disclosure in a country and culture outside of the USA. Bajaj et al. (2017) assessed the impact of self-disclosure and speaker gender on 100 college students' perceptions of male and female speakers who stutter in India. Participants viewed either a male or female who stutters who self-disclosed apologetically or did not self-disclose at all, and then completed a questionnaire related to the speaker's personality, communicative intent, communicative efficiency, and social status. Raters perceived the female speakers as better leaders, friendlier, and more likely to find a life partner compared to male speakers, regardless of self-disclosure condition. These findings differed from previous research citing increased stereotype threat for females who stutter (Byrd, McGill, et al., 2017), but aligned with research citing non-significant differences between an apologetic and no self-disclosure statement (Byrd, Croft, et al., 2017). Thus, findings reported by Bajaj and colleagues demonstrate that similar research questions and methods can lend different results depending on the cultural context.

Purpose

While self-disclosure has been utilised as a clinical tool among PWS in the USA, as well as marginalised populations in Israel (Mor et al., 2015), it has yet to be investigated as a method to reduce stigma among PWS in Israel. The purpose of this study is to replicate the Byrd, Croft, et al. (2017) study to determine whether the benefits of self-disclosure transcend culture and language. Specifically, we 1) examined how use of an informative, apologetic, or no self-disclosure statement influences listeners' perceptions of male and female Hebrew-speaking PWS and 2) compared results with previous research to determine the potential influence of culture on study results. Given the

research to suggest the benefit of using an informative self-disclosure statement to improve listeners' perceptions (Byrd, Croft, et al., 2017), and the lack of research to suggest otherwise, we hypothesised that using an informative self-disclosure statement would yield more positive perceptions of PWS compared to the apologetic and no self-disclosure conditions. Additionally, considering the previous research to support dual discrimination of females who stutter (e.g. Byrd, McGill, et al., 2017), as well as discrimination and negative stereotyping of females in Israel (Berkovitch, Waldman, & Yanay, 2012; Feldheim, 2013), we further hypothesised that listeners would rate females who stutter lower on positive traits and higher on negative traits compared to males who stutter, regardless of self-disclosure condition.

Method

The study protocol replicated Byrd, Croft, et al.'s (2017) method as closely as possible to allow for comparison. Each participant watched a video featuring a male or female speaker who simulated stuttering who either self-disclosed informatively, apologetically, or not at all. Perceptions regarding the speaker were then collected via an electronic survey.

Translation and piloting

The present study utilised a forward-to-backward translation process to translate the survey and video scripts from Byrd, Croft, et al. (2017) study from English into Hebrew, Israel's official language. This forward-to-back method ensures clear and precise translation and has been used in other cross-cultural studies in the area of stuttering (Chu, Sakai, Mori, & Iverach, 2017; Lankman et al., 2015). First, the English version of the survey and scripts were forward-translated into Hebrew by a certified Hebrew-English translator who had extensive, professional experience translating academic and non-academic content. The Hebrew version of the survey was then critically reviewed and translated back into English by two independent reviewers who were blinded to the original English survey. The back-translated English version of the survey was then examined by the researchers and compared to the original version to ensure that the original concepts and constructs were maintained.

Two considerations related to wording were raised and resolved during the translation process. First, the apologetic self-disclosure script was modified to be more linguistically appropriate in Hebrew. In the original study, the speaker in the apologetic self-disclosure condition recited the following line: "Before we get started, I should let you know that I stutter, so this might get hard in spots, so bear with me" (Byrd, Croft, et al., 2017; Healey et al., 2007). Given the idiomatic nature of the phrase "bear with me" and lack of direct translation to Hebrew, this phrase was

removed from the apologetic script and replaced with “I apologise”. From a conceptual perspective, this modification maintained the apologetic tone of this condition compared to the informative or no self-disclosure conditions.

Second, given that Hebrew is a gendered language, the survey and scripts were modified to account for gender. In the survey, each video featuring a male or female speaker was followed by questions that used the corresponding male or female gender suffixes when referring to the speaker and the speaker’s attributes. In the videos themselves, the male and female speakers used male and female pronouns and verbs when reciting the self-disclosure scripts.

Prior to widespread survey dissemination, the completed survey, including the video stimuli, were piloted among 15 adults Israel. These adults ranged in age from 22–43 and included both males and females from a variety of professions, including university students, soldiers in the Israeli army, business professionals, and teachers. No major concerns or feedback regarding the survey wording or flow were reported, indicating that the survey was ready for distribution.

Survey

The survey questions, flow, and electronic format on the Qualtrics platform were consistent with Byrd, Croft, et al. (2017). The first page of the survey was an informed consent document, which outlined risks and benefits of participating in the study, anonymity, the authors’ contact information, and notice that the study had been approved by the authors’ university Institutional Review Board. Participants indicated consent by clicking on the “»»” symbol at the bottom of the page, which then led to a randomly assigned video. Immediately above the video, participants read that the speaker they were about to view was interviewing for a job and had been asked to share a little bit about themselves. Participants then clicked on the video to view it. Each participant viewed only one of six possible videos (the same male or female self-disclosing stuttering informatively, apologetically, or not at all).

After viewing the video, participants rated the speaker they viewed on ten traits: friendly, outgoing, intelligent, confident, engaging, unfriendly, shy, unintelligent, insecure, and distracting using a bipolar likert scale from 1 (completely disagree) to 7 (completely agree). Finally, participants completed demographic questions. Similar to the survey administered by Byrd, Croft, et al. (2017), participants were asked about age and gender. For the distinct purposes of the present study, participants were also asked whether they were born in Israel, permanent residents of Israel, how long they had lived in Israel, native language, and Hebrew proficiency on a scale from 1–10 (1: Not at all proficient, 10: Extremely proficient).

Video stimuli

Speakers

The speakers included a 28-year-old male and a 37-year-old female, both native Hebrew speakers who had recently moved to the USA from Israel. To ensure that the nine-year age difference between speakers was not a source of bias in the present study, the authors administered a survey to 20 pilot participants ($N=9$ males; $N=11$ females; age range = 24–68 years; $M=34.95$ years) who viewed photos of each speaker with a neutral facial expression and guessed their ages. Responses yielded a perceived mean age of 33.2 for the male and 32.9 for the female. Participants reported a mean perceived age difference of 3.8 years between the male and female speaker. Both speakers reported non-significant history of speech, language, resonance, and/or voice disorder.

Script content and preparation

The script across each experimental condition (i.e. informative, apologetic, no self-disclosure) reflects Byrd, Croft, et al. (2017). Speakers in all three conditions first introduced themselves and shared that they were graduating in the coming month. Next, participants either self-disclosed an informative manner (i.e. “I want to let you know that I stutter, you might hear me repeat sounds or phrases, so if you have any questions, please feel free to ask”), an apologetic manner (i.e. “I should let you know that I stutter, so this might be hard in spots, I apologise”), or did not self-disclose at all. All participants concluded with “I am really honored to be here”.

The speakers were provided all three scripts one week prior to filming and instructed to practice with the goal of reciting each script naturally from memory. The authors asked the speakers to practice with special attention to maintaining a neutral facial expression and refraining from extraneous body or head movements during the script delivery and stuttering moments so as to present with a similar demeanour to one another and across experimental conditions.

Disfluencies and stuttering training

Consistent with Byrd, Croft, et al. (2017), the informative, apologetic, and no self-disclosure statement scripts were coded to mark sound/syllable repetitions, whole-word repetitions, audible sound prolongations, and inaudible sound prolongations. Additional stuttering-like disfluencies were distributed along each self-disclosure statement script to allow for comparable total frequency of stuttering across scripts. See Table I for an overview of frequency and types of stuttering-like disfluencies across the informative, apologetic, and no self-disclosure conditions. Ultimately, percentage of stuttering-like

Table I. Number of stuttering-like disfluencies produced during video stimuli for male and female speakers.

Disfluency	Informative	Apologetic	No self-disclosure
Sound/syllable repetition	3	3	1
Whole word repetition	1	1	1
Audible sound prolongation	2	2	2
Inaudible sound prolongation	1	1	0
Total stuttering-like disfluencies	7	7	4
Total words	54	48	27
Percentage of stuttering-like disfluencies per total words	13	14.6	14.8

disfluencies ranged from 13–14.8% across the three scripts.

While both speakers reported previous interactions with PWS, neither were PWS themselves. Thus, the speakers underwent the following training process to gain competency in stuttering: 1) Learned about the development and nature of stuttering through reading and discussion, 2) Viewed a series of videos depicting each type of stuttering-like disfluency, 3) Discussed the rationale for voluntary stuttering for people who do and do not stutter, 3) Practiced stuttering with tension on each type of stuttering-like disfluency with pointed feedback from the authors. The speakers then practiced stuttering throughout the next week, during which they sent the authors videos practicing the script. The authors provided feedback regarding the degree to which their stuttering reflected authentic stuttering. Most feedback instructed the speakers to stutter with more tension and to reduce extraneous head or body movements during speech delivery. The authors also provided feedback regarding the duration of each stuttering moment to maintain consistency within and between both speakers.

Recording equipment and video selection

The videos were recorded using a Cannon Vixia HFM500 with a Sennheiser AVS Wireless Lavalier microphone. Three final potential videos for each speaker were narrowed down and selected by the authors. The videos in which the speakers stuttered with the greatest accuracy and with the greatest consistency with regards to stuttering duration between speakers were selected. This video was then shown to a certified speech-language pathologist and clinical supervisor who specialises in stuttering who perceived both speakers to be PWS.

Participants

To recruit participants, the first author emailed professional contacts in Israel from her study abroad, academic, community, and faith-based networks. These individuals were informed of the general purpose of the study (i.e. “to advance understanding of communication in Israel”) and asked to send the survey to eligible and interested participants (i.e. snowball sampling). Eligible participants were 18 years old or older and reported permanent residence in Israel. Recruited participants were informed of the general purpose of the study and told that they would be

watching a video. Thus, participants were instructed to be in a quiet location or use headphones prior to starting the survey. All participants completed the survey remotely from the device of their choice.

Ultimately, the final participant pool consisted of 92 adults in Israel ($N = 38$ males; $N = 54$ females; age range = 21–69 years; $M = 35$ years). Seventy percent of the sample was born in Israel, and 75% spoke Hebrew as their native language. Other native languages included English (10%), Spanish (3%), Russian (3%), multilingual (5%), and other (3%). On a scale from one (not at all proficient) to ten (extremely proficient), 96% of participants rated their proficiency as an eight, nine, or ten. The remaining four percent rated their proficiency as a five, six, or seven. No participants rated their Hebrew proficiency below five.

Results

The data were analysed using a comparable method to Byrd, Croft, et al. (2017). Specifically, a linear model was run in R studio with video type (informative, apologetic, no self-disclosure) and speaker gender as independent variables and personality traits (friendly, outgoing, intelligent, confident, engaging, distracting, unfriendly, shy, unintelligent, insecure) as dependent variables. Additionally, to address any concern related to the distribution of male and female listeners ($N = 38$ males; $N = 54$ females), a linear model was run as a post-hoc analysis with listener gender as the independent variable and personality traits as dependent variables to determine whether listener gender influenced ratings of the speaker. The linear models were evaluated through an ANOVA summary from the “afex” package in R (Singmann, Bolker, Westfall, Aust, & Ben-Shachar, 2020), utilising Type III Sums of Squares. Mean ratings (maximum score is 7) are reported along with standard errors of the mean. Post-hoc pairwise comparisons using the “emmeans” package in R (Lenth, 2020) were performed when there was a significant or near-significant F value. To correct for the multiple comparisons and prevent Type I error, an alpha value of 0.01 was applied when interpreting significant findings. Effect sizes of significant F values were obtained through partial eta squared (η^2) using the package “effsize” version 0.7.1 in R (Torchiano, 2020). Partial eta squared values of 0.01 were considered small, 0.06 were medium, and 0.14 were considered large when using an Anova (Cohen, 1988). Results

Table II. Observer ratings for personality traits based on presence of self-disclosure, speaker gender, and listener gender.

Dependent variable	Independent variable	Df	F value	Significance
Friendly	Self-disclosure	2	2.163	.121
	Speaker gender	1	12.378	<.001*
	Listener gender	1	1.520	.221
Outgoing	Self-disclosure	2	5.983	.004*
	Speaker gender	1	12.345	<.001*
	Listener gender	1	0.633	.428
Intelligent	Self-disclosure	2	2.537	.085
	Speaker gender	1	0.202	.654
	Listener gender	1	0.024	.878
Confident	Self-disclosure	2	3.543	.033
	Speaker gender	1	5.173	.025
	Listener gender	1	0.291	.591
Engaging	Self-disclosure	2	1.92	.152
	Speaker gender	1	0.06	.805
	Listener gender	1	0.000	.994
Distracting	Self-disclosure	2	0.233	.793
	Speaker gender	1	0.758	.386
	Listener gender	1	0.294	.589
Unfriendly	Self-disclosure	2	0.105	.901
	Speaker gender	1	3.426	.067
	Listener gender	1	0.130	.711
Shy	Self-disclosure	2	0.106	.899
	Speaker gender	1	0.038	.846
	Listener gender	1	2.610	.110
Unintelligent	Self-disclosure	2	1.165	.317
	Speaker gender	1	-0.429	.514
	Listener gender	1	0.281	.597
Insecure	Self-disclosure	2	2.482	.089
	Speaker gender	1	4.411	.039
	Listener gender	1	1.954	.166

*indicates significance at the $p < 0.01$ level.

regarding ratings for each personality trait based on the presence and type of self-disclosure, as well as the speaker and listener gender, are presented in Table II.

Friendly

A main effect for speaker gender was significant, $F(1, 89) = 12.378$, $p < 0.001$, $\eta^2 = 0.121$, with observers rating males ($M = 5.94$, $SE = .16$) as more friendly than females ($M = 5.10$, $SE = .17$), $t(90) = 3.52$, $p < 0.001$. This finding supports the authors' hypothesis that the male speaker would be viewed significantly more positively than the female speaker. Significant main effects for self-disclosure were not found.

Outgoing

A significant main effect was found for self-disclosure, $F(2, 89) = 5.983$, $p = 0.004$, $\eta^2 = 0.119$, controlling for speaker gender. Follow-up comparisons indicated that listeners were significantly more likely to rate the speaker who used an informative self-disclosure statement as more outgoing ($M = 5.56$, $SE = 0.21$) than the speaker who did not use any self-disclosure statement ($M = 4.42$, $SE = 0.26$), $t(90) = 1.144$, $p = 0.003$. No significant difference was found between the use of an informative versus an apologetic self-disclosure statement ($M = 5.04$, $SE = 0.24$), $t(90) = 0.524$, $p = 0.317$, nor between an apologetic and no self-disclosure statement, $t(90) = 0.620$, $p = 0.272$.

A significant main effect was also found for speaker gender, $F(1, 90) = 12.35$, $p < 0.001$, $\eta^2 = 0.121$ when controlling for self-disclosure condition. Listeners were more likely to view the male ($M = 5.94$, $SE = .16$) as more outgoing compared to the female ($M = 4.60$, $SE = .19$), $t(90) = 3.53$, $p < 0.001$.

These findings support the researchers' hypotheses that speakers who used an informative self-disclosure statement would be viewed significantly more positively than using an apologetic or no self-disclosure statement, and that the male speaker would be rated more positively than the female speaker.

Confident

When controlling for speaker gender, a main effect of self-disclosure condition on listeners' perceptions of speaker confidence approached but did not achieve significance, $F(2, 89) = 3.543$, $p = 0.033$, $\eta^2 = 0.074$. Follow-up comparisons indicated that speakers who used the informative self-disclosure statement ($M = 5.39$, $SE = 0.23$) were rated as more confident than the speaker who did not self-disclose ($M = 4.46$, $SE = 0.27$), $t(90) = 0.932$, $p = 0.039$. No significant difference was found between an informative self-disclosure statement and an apologetic self-disclosure statement ($M = 4.78$, $SE = 0.27$), $t(90) = 0.612$, $p = 0.263$, or between an apologetic self-disclosure statement and no self-disclosure statement, $t(90) = 0.319$, $p = 1.000$.

When controlling for self-disclosure condition, results indicated that a significant main effect of speaker gender approached but did not achieve statistical significance, $F(1, 90) = 5.173$, $p = 0.025$, $\eta^2 = 0.054$. Participants rated male speakers ($M = 5.28$, $SE = 0.19$) as more confident than female speakers ($M = 4.60$, $SE = 0.23$), $t(90) = 2.250$, $p = 0.027$.

Insecure

When controlling for self-disclosure condition, results indicated that a significant main effect of speaker gender approached but did not achieve significance, $F(1, 89) = 4.411$, $p = 0.039$, $\eta^2 = 0.047$. Respondents rated the female speakers ($M = 2.86$, $SE = 0.24$) as more insecure than male speakers ($M = 2.20$, $SE = 0.20$), $t(90) = 2.08$, $p = 0.04$.

Intelligent, engaging, distracting, unfriendly, shy, unintelligent

No significant or near-significant main effects were found for self-disclosure condition or speaker gender for these personality traits.

Post-hoc analysis of listener gender

No significant main effects for listener gender were found across any of the ten personality traits.

Discussion

Previous research suggests that negative perceptions of PWS persist across culture and language. Studies also indicate that self-disclosure can help PWS reduce stereotype threat by improving listeners' perceptions. This study replicated the method from Byrd, Croft, et al. (2017) to determine the effectiveness of self-disclosure in a culturally and linguistically diverse population. The following discussion will compare findings from the present study to previous research to highlight similarities, differences, and cultural considerations. Implications for clinical practice and reducing stereotype threat for PWS in Israel will also be discussed.

Informative self-disclosure in the context of Israeli culture

In the present study, a significant main effect was found for self-disclosure condition. Speakers who self-disclosed in an informative manner were perceived as more outgoing compared to speakers who apologised for stuttering or did not self-disclose. The medium-large effect size ($\eta^2 = 0.121$) underscores the strength of this relationship and supports the researchers' hypothesis that informative self-disclosure of stuttering would yield more positive listener perceptions compared to apologetic or no self-disclosure. However, the present study found fewer significant main effects of self-disclosure when compared to Byrd, Croft, et al. (2017). Specifically, participants from Byrd, Croft, et al. (2017) rated the speaker who self-disclosed as significantly less insecure and significantly more friendly, outgoing, intelligent, and confident compared to the speaker who did not self-disclose, whereas participants from the present study rated the speaker who self-disclosed as significantly more outgoing. Why did self-disclosure of stuttering – and informative self-disclosure in particular – seem to uniquely impact listeners' perceptions of speaker outgoingness?

First, it is important to consider the implications of being perceived as "outgoing". Broadly speaking, "outgoing" refers to an individual's approachability, friendliness, and social confidence, and it is often used interchangeably with the term "extraverted". According to Eysenck and Eysenck (1975), an extraverted (or outgoing) individual seeks social relationships, enjoys participating in social gatherings, and has broad social circles. Thus, being outgoing can be viewed as the pursuit and enjoyment of social participation.

The value of social participation is particularly relevant in Israel, whose social, cultural, religious, and political landscape holds complex yet strong implications for community and belonging. In addition to its relatively small population of eight million people, which is approximately 450 times smaller than the USA, Israel employs a mandatory military

service that unites citizens from diverse socioeconomic, ethnic, and linguistic backgrounds for at least two to three years. Thus, Israel's size and army service alone increase feelings of familiarity even among strangers in Israel's multicultural society, as well as the likelihood that two strangers are, indeed, connected through various social circles (Roe & Farber, 2001). Israelis' communication style reflects this sense of community; in a study investigating perceived differences between Norwegians' and Israelis' communication, participants reported that Israelis were more openly emotional and talked more about thoughts and feelings with friends and family (Wilhelm & Zlotnick, 2014).

Moreover, research suggests that self-disclosure can serve as a bridge to increased feelings of belonging and acceptance for the speaker and the listener, respectively. In a study examining the consequences of concealing versus disclosing a stigmatised identity, Newheiser and Barreto (2014) found that concealment reduced interpersonal closeness, feelings of belonging on behalf of the speaker, and listeners' acceptance and inclusion of the speaker. Thus, while individuals with stigmatised identities, such as stuttering, often try to hide these identities, non-disclosure can actually lead to greater exclusion while self-disclosure can lead to enhanced belonging.

Thus, it is possible that listeners in the present study reported a salient relationship between self-disclosure and speaker outgoingness because of the value that social participation holds in Israeli society, as well as the role that self-disclosure plays in achieving that value. Results implicate that people in Israel who stutter who self-disclose are more likely to be viewed as a person who pursues and enjoys social relationships (i.e. outgoing), a central value in Israel's culture.

Critically, only *informative* self-disclosure of stuttering increased perceptions of speaker outgoingness, thus supporting and replicating previous research (Byrd, Croft, et al., 2017). No significant differences in listener perception were found when the speaker used an informative versus an apologetic statement, or an apologetic versus no self-disclosure statement. Though non-significant, average ratings across self-disclosure conditions and across personality traits indicated that participants consistently rated the speaker who used an informative self-disclosure statement more positively than those who used an apologetic or no self-disclosure statement. Therefore, results provide support that self-disclosing in a neutral and informative manner, rather than apologising for stuttering, is most effective for improving listeners' perceptions of stuttering even across a different culture and language.

Clinically, clinicians working with PWS should encourage speakers to self-disclose in a neutral, non-apologetic manner, particularly in an interview context. Apologising for stuttering or not self-disclosing

at all do not appear to yield any significant benefit for improving listeners' perceptions.

Effects of speaker gender

Findings indicated a negative gender bias towards the female speaker who was stuttering, whom participants rated as significantly less outgoing and less friendly compared to the male speaker. Effect sizes were medium-large across each significant finding. While differences in average ratings of the male and female speakers across other personality traits did not achieve significance, the male speaker was consistently rated more positively than the female speaker. Thus, these findings support the authors' hypothesis that the male speaker would be rated significantly higher and the female speaker would be rated significantly lower on positive traits.

Interestingly, listeners rated the male speaker significantly higher on positive traits (i.e. outgoing and friendly) but did not rate the female speaker as significantly more shy or unfriendly (i.e. the counter-traits) compared to the male speaker. This finding indicates that listeners' gender biases resulted in increased positive perceptions of the male speaker rather than increased negative perceptions of the female speaker.

Recent research reveals a potential explanation for this outcome. Specifically, in a study by Cuddy et al., (2015), researchers found that culture moderates the content of gender stereotypes, such that males are more likely than females to be stereotyped as the characteristics that are most respected or valued in a given cultural context. This phenomenon is supported by the Expectation States Theory (Berger, Conner, & Fisek, 1981; Correll & Ridgeway, 2003), which states that highly valued personality traits in a given culture are often associated with the males as the "socially dominant" members. As discussed, the values of community and belonging are particularly salient in Israeli culture (Roe & Farber, 2001; Wilhelm & Zlotnick, 2014). Therefore, according to this theory, it makes sense that the male speaker in the present study was perceived as possessing more of the traits (i.e. outgoing and friendly) that reflect these values.

Taken together, these findings reinforce research from other disciplines citing gender bias that results in increased positive perceptions of males compared to females (Brown & Lord, 1999; Coleman, Brunell, & Haugen, 2015; Hindman & Walker, 2020; Johnson, Murphy, Zewdie, & Reichard, 2008; Matic & Jadhav, 2018), as well as research in Israel citing negative stereotyping of females (Berkovitch et al., 2012; Feldheim, 2013; Maoz, 2009). In the context of the stuttering literature, outcomes support the notion that females who stutter are at risk for being perceived less positively than males due to holding two stigmatised identities as a female *and* a person who stutters (Byrd, McGill, et al., 2017). For example, Byrd, McGill, et al. (2017) found that

listeners rated the female who stuttered as significantly less friendly, confident, and outgoing and significantly more unfriendly, shy, and unintelligent compared to the male. Findings from the present study build upon the research by revealing the cross-cultural and cross-linguistic persistence of dual discrimination of females who stutter.

Effects of listener gender

Post-hoc analyses indicated that listener gender did not significantly influence perceptions of the speaker on any of the ten personality traits. Thus, the distribution of male and female listeners did not seem to be a source of bias in the present study. Given that previous studies report mixed findings regarding the influence of listener gender on perceptions of speakers who stutter (Byrd, Croft, et al., 2017; Hult & Wirtz, 1994; Schroder, Melnick, Koul, & Keller, 2002; Susca & Healey, 2001), additional research on this topic is warranted.

Additional considerations and limitations

This study provided preliminary evidence for the beneficial use of self-disclosure; however, it is not yet known whether PWS in Israel utilise self-disclosure, and if so, to what extent. Research suggests that higher levels of cultural stigma surrounding a given condition leads to fewer people with that condition reporting comfort self-disclosing (Chow & Cheng, 2010). More research is needed regarding the degree to which stuttering is stigmatised in Israel, and how that stigma relates to PWS' use or non-use of self-disclosure. Additionally, future research should investigate the influence of cultural differences on perceptions and self-disclosure within Israel's society. Even within Israel's small population, there are vast cultural and communication differences among religious and socio-political sectors (Ezrati-Vinacour & Amir, 2005; Freud et al., 2017). For example, the importance of verbal communication is underscored in the ultra-orthodox Jewish community, where verbal speech underlies the most essential features of religious practice, such as prayer, debate, and text study. While previous research has shown differential impacts of stuttering on quality of life based on religious community (Freud et al., 2017), it is unknown how PWS within these communities navigate the acceptance and self-disclosure of stuttering. Future research should investigate the use and differential impact of self-disclosure within and between these societal boundaries to further reveal the utility of this technique.

It should also be noted that in the video stimuli used in the present study, the authors attempted to control for message content by solely manipulating the presence or absence of an informative or apologetic self-disclosure statement; the rest of the content was the same across conditions. As a result, the length of the three

scripts varied as the informative, apologetic, and no self-disclosure statement scripts contained 54, 48, and 27 words, respectively. To maintain a consistent percentage of stuttering-like disfluencies across these three scripts, the number of stuttering-like disfluencies also varied. Whereas the informative and apologetic self-disclosure scripts each contained seven stuttering-like disfluencies, the no self-disclosure condition contained four. Additionally, the no self-disclosure condition did not contain an inaudible sound prolongation. While this method allowed for isolation of the experimental variable (i.e. self-disclosure) and controlled for percentage of stuttering-like disfluencies across conditions, it is possible that listeners were influenced by the difference in script lengths and/or by the absence of an inaudible sound prolongation in the no self-disclosure condition. However, as described in Byrd, Croft, et al. (2017), there is significant research to suggest that listeners form evaluative judgments of a speaker within 500 milliseconds of the interaction, and that this initial judgement influences the listener's perception throughout the exchange (Ambady, Bernieri, & Richeson, 2000; Ames, Kammrath, Suppes, & Bolger, 2010; Samudra, Min, Cortina, & Miller, 2016; Schmälzle, Renner, & Schupp, 2017). The scripts in the present study allowed listeners to form a judgement beyond the first 500 milliseconds and also incorporated the presence or absence of an informative or apologetic self-disclosure statement. Future research should explore whether message length and/or type of stuttering-like disfluencies influence listeners' perceptions of speakers who do and do not self-disclose stuttering.

Finally, it is possible that the study's sample size limited the study's significant findings, and that a larger sample would have increased statistical power and the subsequent likelihood of discovering significant relationships. A larger sample size should also be employed to ensure that results found in the present study are valid and reliable. Additionally, results from the present study should be interpreted with the understanding that listeners viewed only one male or one female speaker and that factors unrelated to stuttering, such as speaker attractiveness, could have influenced study results; this study should be replicated with listener exposure to more than one male or female person who stutters prior to generalising study results. Thus, while results provide a foundation for the cross-cultural effectiveness of self-disclosure, more research is warranted.

Conclusion

This study expands the research, which had primarily investigated the cross-cultural use of self-disclosure of sexual identity, HIV, and mental health disorders to include the cross-cultural effectiveness of self-disclosure of stuttering. Results from the present study support the cross-cultural and cross-linguistic effectiveness of self-disclosure for improving perceptions of PWS in Israel. Specifically, self-disclosing in an

informative manner increased perceptions of speaker outgoingness, a valued personality trait in Israeli culture. Additionally, the increased positive ratings of the male speaker compared to the female who stutters reveal the pervasive, dual discrimination that females who stutter face across the globe. Ultimately, results demonstrate that the clinical utility of self-disclosure transcends culture and language. Future research should further explore self-disclosure among Israel's diverse social, cultural, ethnic, and religious sectors and compare the use and perception of self-disclosure of stuttering across culturally and linguistically diverse populations.

Declaration of interest

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