

A comparison of stuttering attitudes among nonstuttering children and parents in Bosnia & Herzegovina

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Purpose: A growing body of research has addressed children's stuttering attitudes between preschool and upper elementary school. Attitudes among preschoolers and kindergarteners have been reported to be much lower than fifth graders' attitudes, at which time children's attitudes seemingly converge with their parents' attitudes. It has been suggested these observed changes align with children's social and cognitive development and are resistant to the influence of other variables, such as their culture. The purposes of this study were (a) to extend cultural examinations of children's stuttering attitudes in a sample of kindergarteners through sixth graders in Bosnia & Herzegovina (B&H), and (b) to compare their attitudes with their parents' attitudes.

Methods: One hundred eighty-six child-parent pairs from B&H completed translated versions of the child and adult *Public Opinion Survey of Human Attributes-Stuttering (POSHA-S/Child and POSHA-S)*. Four child cohorts were examined: (a) kindergarteners, (b) first and second graders, (c) third and fourth graders, and (d) fifth and sixth graders.

Results: Children's stuttering attitudes improved with age, with the youngest cohort holding the most negative attitudes. Parents held consistently more positive attitudes than the children overall, but the oldest children's attitudes were quite similar to the parent group.

Conclusions: Confirming previous research, children's stuttering attitudes progressively improved with age and approached the attitudes of their parents by fifth and sixth grade.

Keywords: Stuttering, Attitudes, Children, Parents, *POSHA-S/Child*, *POSHA-S*, *Bosnia & Herzegovina*



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INTRODUCTION

Background

Universally, negative or misinformed stuttering attitudes abound, which often lead to inaccurate stereotyping and/or stigmatization of people who stutter [1]. Attitudes toward any phenomenon are partly formed by what a person believes to be true, as well as how they feel and react toward that phenomenon [2]. In stuttering, attitudinal research has been particularly critical in global efforts to reduce marginalization of people who stutter. St. Louis [3] developed a standard and translatable stuttering attitude instrument, the *Public Opinion Survey on Human Attributes-Stuttering (POSHA-S)*, which provides an impression about respondents' overall beliefs about stuttering and

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how they would react toward a person who stutters. A large coalition of international collaborators contributed to the growth of the *POSHA-S* database, which includes 16,195 respondents from 46 countries around the world. This undertaking has permitted the identification of variables that are particularly influential on stuttering attitudes, which has led to collective efforts to improve public attitudes [4]. Even though reports of stigmatizing attitudes are ubiquitous [5-9], several cross-cultural studies have pointed to notable between country differences. In a seminal text on the topic, St. Louis [10] advanced the probable effect of one's geography and/or culture on stuttering attitudes, with better attitudes among persons from North America and Western Europe, followed by Eastern Europe, the Middle East, Africa, and Asia. Recently, a large-scale study involving over one thousand adults from several European countries (i.e., Bosnia & Herzegovina, Italy, Norway, Germany, Ireland, and England) found that this assumption in Western Europe was not entirely true. The study found (a) similar attitudes among respondents from different regions of the same country but (b) more pronounced attitudinal homogeneity among respondents from the same country compared to different countries, especially differences between Scandinavian countries and Italy [11]. Although not fully elucidated, the authors posited "factors related to one's nationality as the most likely predictors of observed differences in measured attitudes toward stuttering" [11].

Children stuttering attitudes

In efforts to broaden epidemiological efforts to be inclusive of younger respondents, Weidner & St. Louis [12] developed the *POSHA-S/Child*. As explained in the methodology section, the instrument closely parallels the adult version, but can be used with respondents as young as 3 years of age. Since its inception, the instrument has permitted attitude comparisons between cohorts of children and adults [13], and is sensitive to attitude change following an intervention [14]. To date, research using the *POSHA-S/Child* has provided information about the nature of children's stuttering attitudes and plausible explanations about why they change over the course of one's early childhood. In contrast to the well-established adult literature, children's stuttering attitudes have been suggested to be resistant to external cultural influences and more influenced by internal (i.e., developmental) processes, which is consistent with literature in developmental psychology [15].

The first published study using the *POSHA-S/Child* involved preschool and kindergarten children from a Mid-At-

lantic region of the United States. Results suggested that stuttering awareness and negative attitudes emerge during the preschool years [16], which supported previous research using other methodologies [17-19]. That study was among the first to suggest that preschoolers' attitudes are actually worse than those held by older children – and both groups are comparatively lower than adults' attitudes. In a similar study carried out in Turkey using a translated version of the *POSHA-S/Child*, preschoolers held as equally poor stuttering attitudes as the American cohort [20]. This was surprising, given that previous research reported nearly identical stuttering attitudes among sixth-grade Turkish children and their family members [21]. Although those early studies provided evidence for the emergence of stuttering attitudes at a young age, they could not explain the suspected attitude changes between early and late childhood or how children's attitudes compare to the adult majority.

To address that need, Glover, St. Louis, & Weidner [22] measured the stuttering attitudes of preschool through fifth grade children as well as their parents. A total of 150 child-parent pairs participated ($N=300$) representing: preschool ($n=46$), kindergarten ($n=36$), first grade ($n=42$), second grade ($n=38$), third grade ($n=48$), fourth grade ($n=42$), and fifth grade ($n=48$). As measured on the adult and child versions of the *POSHA-S*, attitude trends revealed a generally upward trajectory of attitudes with age, with a dip around second grade. Parents held more positive attitudes, which were not influenced by the grade of their child. Of all parent-child Overall Stuttering Score comparisons, the preschool-parent pairs were the most dissimilar, differing by 33 units. This is compared to fifth grade-parent pairs, which differed by only 7 units.

Results from Glover et al. [22] suggested that children's stuttering attitudes significantly change between early and middle childhood, whereas parents' stuttering attitudes remain stable. The authors posited that children's stuttering attitudes may emerge as a byproduct of social cognitive skills and gradually align with their prevailing culture. As such, young children are more likely to have stuttering attitudes that diverge from their parents' attitudes as compared to slightly older children. In order to substantiate these observations, the authors urged for replications of the study among multicultural samples.

Cross-cultural extensions

Theories about the emergence of stuttering attitudes in young children intrigued many *POSHA-S* collaborators, especially those who conducted attitude research in adults. The second

author, who is from Bosnia & Herzegovina (B&H), indicated a replication of the Glover et al. [22] study in B&H would provide useful contributions to understanding the evolution of attitudes among young children and the possible parental influences on their attitudes.

Based on its location in the west part of the Balkan Peninsula in southeastern Europe, B&H has been a crossroads of diverse populations dating back to the Neolithic age, which has fostered a rich culture. It currently has a population of over 3.5 million and, despite a turbulent history, has made strides to stabilize its [23]. Islam, Eastern Orthodoxy, and Catholicism are the dominant religions practiced by 44%, 31%, and 15% of the population, respectively. The national language has three distinct dialects including Bosnian, Croatian, and Serb, which are very similar in spoken form. The primary school system is similar to the public-school system in America. During the first four years, children are in one classroom and have one teacher for all subjects. From fifth grade onwards, students are taught separate subjects by different teachers [24]. In contrast to American practices, however, children with special needs are generally serviced in designated special education schools and centers, not in the general education setting. The country is making a concerted effort to reform its inclusion practices but have a lack of trained special educators to do so effectively [25].

Bosnia & Herzegovina emerged as a feasible country in which to replicate the Glover et al. [22] studies for two primary reasons. First, previous stuttering attitude research in B&H has provided a strong foundation for continued investigations and cross-cultural comparisons. The aforementioned study by St. Louis, Sønsterud et al. [11], adults in B&H showed internally consistent attitudes throughout three distinct regions of the country, each representing a different majority religious affiliation. Overall, attitudes among B&H adults were about the same or slightly better than median scores from the *POSHA-S* database. Second, B&H has a distinct cultural identity relative to its social and economic history, educational practices, as well as language, religious, racial diversity. The unique culture of B&H, coupled with the previous stuttering attitude research in the region, allow researchers to better understand the role of culture versus other factors, such as social cognitive development, on stuttering attitudes.

Purpose

The purposes of this study were to examine the differences of stuttering attitudes among children from B&H across different

grade levels and compare their attitudes to those of their parents. Bearing on previous research theorizing children's stuttering attitudes are resistant to culture [20] and that attitudes improve throughout early childhood [22], we hypothesized (a) children's attitudes would follow an upward trajectory with age, (b) younger children would hold significantly worse attitudes than their parents, and (c) older children would hold similar attitudes to their parents.

METHODS

Instruments

The children filled out the *Public Opinion Survey on Human Attributes-Stuttering (POSHA-S/Child)*, and the parents filled out the adult version of the *POSHA-S*, with the addition of an informational section relative to their child and added anchor traits, described below. The *POSHA-S* follows a long line of research dating back two decades and has been used extensively across the world. Psychometric properties (i.e., test-retest reliability, internal consistency, construct, and concurrent validity), translatability, and ease of use have been confirmed in dozens of studies, which are summarized by St. Louis [10,26]. Weidner and St. Louis [12] developed the *POSHA-S/Child*, which has since been used to measure children's stuttering attitudes [16], detect change in attitudes following an intervention [14], and compare child and parent attitudes using the corresponding versions of the *POSHA-S* [11,22]. The *POSHA-S/Child* has been shown to hold satisfactory test-retest reliability [27] and can be administered orally or face-to-face to 9 to 11 year-olds [28].

The *POSHA-S* and *POSHA-S/Child* follow a similar scoring framework, with individual items averaging into component scores categorized into the Beliefs (BEL) or Self Reactions (SR) Subscores. The Subscores are averaged to generate an Overall Stuttering Score (OSS). On both instruments, scores are interpreted on a -100 to +100 continuum, with higher values corresponding to more positive or informed stuttering attitudes and "0" as neutral (see St. Louis [26] for a detailed description of the scoring system). Each instrument also has a demographic section, which provides information about respondents' sex, age, health and abilities, relative income, education level, and familiarity with/exposure to various human attributes (i.e., stuttering, wheelchair-use, obesity). Parent respondents complete the demographic section for their children.

There are a few, but important, differences between the adult and child instruments worth mentioning. First, although

they share 28 similar items, the wording is slightly different in order to make the language understandable for child respondents. For example, “genetics” on the adult version is worded “came from their mom or dad when they were born” on the child version. Second, the child version provides respondents with a video example of stuttering (as demonstrated by customized cartoon characters), followed by a definition of stuttering. The absence of a definition on the adult version makes no differences in results [11]. Third, each instrument provides a reference point for stuttering attitudes using other human traits. In order to compare the child and parent responses, the anchor traits “obesity” and “wheelchair use” were selected. Parents rate their preferences about the stuttering, wheelchair use, and obesity using a Likert scale and children are shown visual depictions (i.e., line drawings) of the traits in counter-balanced pairs, and asked, “which one would you rather be?” Rank-ordered preferences of the three traits are generated for both the parent and child groups.

A previously translated *POSHA-S* into Bosnian-Croatian-Serbian was used for adult respondents [11] and the child survey was translated into Bosnian-Croatian-Serbian for this study. Translation procedures followed that of previous *POSHA-S* studies, in which the English version was translated to Bosnian-Croatian-Serbian, and then back-translated into English by persons fluent in those languages. The video example of stuttering was also translated into Bosnian-Croatian-Serbian. It featured the same cartoon images, topic of discourse, and frequency and type of stuttered speech as that of the English version.

Design

The second author obtained the permissions for human subject research through the primary and kindergarten school sites. Child-parent pairs were recruited using convenience sampling techniques at various primary schools throughout the city of Tuzla, Bosnia & Herzegovina. The grades were combined into four cohorts to represent children in kindergarten, early, middle, and upper elementary-aged children and their parents.

The second author and a research assistant from the University of Tuzla gave hard copies of the *POSHA-S* to classroom teachers, who then distributed the surveys to parents. The parents returned completed forms to the school, which the researchers collected. Trained graduate students conducted the *POSHA-S/Child* orally to the two younger cohorts and recorded children’s responses on a hard copy of the survey. The

older children completed pencil-and-paper survey in the school setting. A recent study confirmed no differences between oral and face-to-face delivery [28].

Analysis of results

Descriptive data for items, components, Subscores, and the Overall Stuttering Score (OSS) were analyzed for both the child and parent groups. Within and between group differences for summary scores (i.e., components, Subscores, and OSS) were calculated using independent t-tests. Cohen’s *d* effect sizes for significant differences were also reported. To account for the number of comparisons and thereby control for Type 1 error, an adjusted significance level of $p \leq 0.0047$ (.05/12) was used.

RESULTS

Children’s demographics

One-hundred eighty-six nonstuttering children participated in the study. Children with parental consent, gave assent, and who demonstrated the ability to reliably comprehend and respond to the survey questions were included in the study. The latter criterion was determined via a combination of teacher and parental report. Children were not excluded on the basis of sex, socio-economic status, or race. Although stuttering was not an exclusionary criterion, based on parent report, none of the children in the current study stuttered.

Children’s demographic information is summarized in Table 1. By grade, there were 61 kindergarteners, 24 first graders, 22 second graders, 19 third graders, 20 fourth graders, 15 fifth graders, and 25 sixth graders. As noted, however, these data were combined into four cohorts: kindergarteners ($n=61$), first and second graders ($n=46$), third and fourth graders ($n=39$), and fifth and sixth graders ($n=40$). The average age of the children was 8.1 years (range 3.6 to 12.8 years). Slightly more females than males participated (57% compared to 43%). There was a steady increase in multilingualism, ranging from 12% of kindergarteners to 76% of sixth graders. Parents completed a short profile about their child’s health, abilities, and if their child was or knew anyone who is obese, a wheelchair user, or a person who stutters. As interpreted on the -100 to +100 scale, the children reportedly had overall good physical health (91), mental health (95), ability to learn (94), and ability to speak (89). A minority of children were obese (6%), and none of the children stuttered or used a wheelchair. Children’s reported exposure to those traits was much higher with

Table 1. Demographic information of children, reported by parents, organized by the four cohorts (Columns 1-4) and combined (Column 5) as well as parents' demographic information (Column 6)

| Demographic variable | Kindergarten | 1st & 2nd grades | 3rd & 4th grades | 5th & 6th grades | Children all | Parents all |
|----------------------------------|--------------|------------------|------------------|------------------|--------------|-------------|
| Column | 1 | 2 | 3 | 4 | 5 | 6 |
| Number | 61 | 46 | 39 | 40 | 186 | 186 |
| Descriptors | | | | | | |
| Age (yr) | 5.2 | 7.5 | 9.5 | 11.6 | 8.1 | 38.4 |
| Education (yr) | — | — | — | — | — | 14.2 |
| Male | 38% | 50% | 49% | 38% | 44% | 18% |
| Female | 62% | 50% | 51% | 62% | 56% | 82% |
| Multilingual | 11% | 33% | 41% | 70% | 41% | 52% |
| ≥ 1 Sibling | 54% | 74% | 74% | 80% | 49% | — |
| Regular daycare | 75% | 4% | 0% | 0% | 49% | — |
| Regular school | 0% | 100% | 100% | 100% | 75% | — |
| Identification | | | | | | |
| Obese | 3% | 2% | 8% | 13% | 7% | 6% |
| Wheelchair | 0% | 0% | 0% | 0% | 0% | 0% |
| Stuttering | 0% | 0% | 0% | 0% | 0% | 0% |
| Intelligent | — | — | — | — | — | 17% |
| Left handed | — | — | — | — | — | 3% |
| No persons known... | | | | | | |
| Obese | 33% | 20% | 3% | 13% | 17% | 8% |
| Wheelchair | 75% | 52% | 56% | 40% | 56% | 40% |
| Stuttering (parent report) | 54% | 56% | 36% | 38% | 46% | 21% |
| Intelligent | — | — | — | — | — | 2% |
| Left handed | — | — | — | — | — | 5% |
| Health & abilities (-100 – +100) | | | | | | |
| Physical health | 92 | 95 | 81 | 94 | 90 | 65 |
| Mental health | 95 | 99 | 86 | 99 | 95 | 84 |
| Ability to learn | 96 | 97 | 87 | 94 | 72 | 78 |
| Ability to speak | 84 | 93 | 86 | 95 | 90 | 88 |
| Life priorities | | | | | | |
| Be safe/secure | — | — | — | — | — | 88 |
| Be free | — | — | — | — | — | 69 |
| Spend time alone | — | — | — | — | — | 27 |
| Attend social events | — | — | — | — | — | 18 |
| Imagine new things | — | — | — | — | — | 31 |
| Help less fortunate | — | — | — | — | — | 70 |
| Have exciting experiences | — | — | — | — | — | -34 |
| Practice my religion | — | — | — | — | — | 46 |
| Earn money | — | — | — | — | — | 76 |
| Do job/duty | — | — | — | — | — | 91 |
| Get things done | — | — | — | — | — | 89 |
| Solve big problems | — | — | — | — | — | 82 |
| Impression | | | | | | |
| Obese | — | — | — | — | — | 3 |
| Wheelchair | — | — | — | — | — | 41 |
| Stuttering | — | — | — | — | — | 26 |
| Want/have | | | | | | |
| Obese | — | — | — | — | — | -72 |
| Wheelchair | — | — | — | — | — | -70 |
| Stuttering | — | — | — | — | — | -59 |
| Amount known | | | | | | |
| Obese | — | — | — | — | — | 14 |
| Wheelchair | — | — | — | — | — | -2 |
| Stuttering | — | — | — | — | — | -9 |

19% knowing a person who was obese, 58% knowing a person in a wheelchair, and 47% knowing a person who stuttered.

Parent’s demographics

One parent of each child filled out a questionnaire; therefore, the sample sizes were identical ($n = 186$). The average years of schooling for all parents was 14.1 years, which differed only slightly by grade of the child (range 13.3 years for parents of sixth graders to 15.2 years for parents of second graders). Most respondents were mothers (82%), nearly all were married (99%), and all were Caucasian. Further, almost three-fourths worked (76%) and were multilingual (76%). Religious practices primarily included Islam (45%) and Catholicism (27%). Twenty-three percent did not report their religion. Self-reported relative income scores, interpreted on the -100 to 100 scale, revealed a slightly lower-than average income of -8 as compared to the median POSHA-S database income of +1 (circa January, 2020). Overall, parents reported good health and abilities. Parents’ demographic information is summarized in Table 1.

Children attitudes

Figure 1 depicts the POSHA-S/Child summary scores with

better or more informed attitudes toward the periphery. As shown, children’s stuttering attitudes steadily improved with age. Across the four cohorts, Overall Stuttering scores were: -6 (kindergarteners), -2 (first and second graders), 9 (third and fourth graders), and 19 (fifth and sixth graders). Significant differences existed between the kindergarten and third/fourth graders ($p = 0.00008$), the kindergarten and fifth/sixth graders ($p < 0.00001$), and the first/second graders and fifth/sixth graders ($p < 0.00001$). The Subscores and many components also revealed progressively higher scores across cohorts for Self Reactions (including the Traits/Personality, Help From, and Potential components) and Beliefs (including the Accommodating/Helping component). All POSHA-S/Child items and summary score means are detailed in Appendix A.

Parent attitudes

Parents’ Overall Stuttering Score was 26, ranging from 23 (parents of third and fourth graders) to 30 (parents of kindergarteners). Stuttering Beliefs and Self Reactions were 35 and 17, respectively. Although parents of kindergarteners consistently held the most positive attitudes, there were no significant differences between the parents based on their children’s age. Appendix A outlines all parent ratings on the POSHA-S.

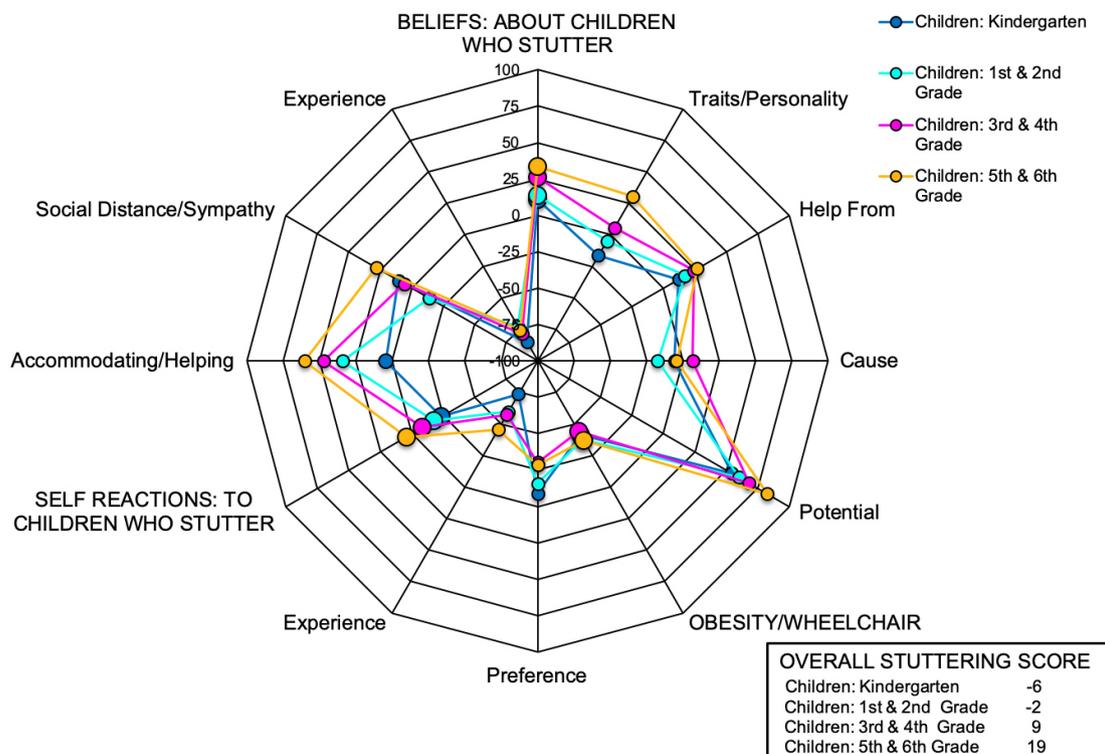


Figure 1. Mean POSHA-S/Child Summary Scores for 186 children in 4 cohorts.

Child-parent comparative data

With few exceptions, parents consistently held higher stuttering attitudes compared to the child group. Parent vs. child comparisons revealed significant differences relative to OSS (child=3, parent=26, $p < 0.00001$), Beliefs (child=19, parent=35, $p < 0.00001$), and Self Reactions (child=-13, parent=17, $p < 0.00001$), and the effect sizes were large. With one exception (i.e., stuttering should be helped by), parents' attitudes were more positive or informed than the children's attitudes to a significant degree. Table 2 shows all comparisons

between the child and parent groups for comparable items. Independent t-tests were utilized to analyze group differences, with a significance level of $p < 0.00417$.

Comparisons by cohort revealed a clear trend for children's OSSs steadily approaching those of their parents. For example, the youngest child cohort (i.e., kindergarteners) significantly different from the parents, (youngest child cohort=-6, parent=26, $p < 0.00001$), but the oldest child cohort (i.e., fifth/sixth graders) did not significantly differ (oldest child cohort=19, parent=26, $p = 0.092$). Figure 2 represents the trajec-

Table 2. POSHA-S means (and standard deviations) for all ratings, and t-test values, t-test probabilities, and effect sizes for summary scores between 186 children and 186 parents

| POSHA-S Variable | Children (n=186) | Parents (n=186) | t-Test Values | t-Test Probability | Cohen's d Effect Size |
|--------------------------|------------------|-----------------|---------------|--------------------|-----------------------|
| Overall stuttering score | 3 (21.9) | 26 (19.3) | -12.04 | <0.00001 | 1.114 |
| Beliefs | 19 (27.3) | 35 (27.3) | -6.87 | <0.00001 | 0.586 |
| Traits/personality | 1 (55.2) | 39 (67.6) | -4.89 | <0.00001 | 0.616 |
| Helped from | 19 (40.0) | -1 (44.9) | 1.32 | 0.187 | 0.470 |
| Potential | 64 (47.2) | 72 (31.6) | -3.05 | 0.002 | 0.199 |
| Self reactions | -13 (23.9) | 17 (24.9) | -12.66 | <0.00001 | 1.229 |
| Accommodating/helping | 33 (40.4) | 54 (31.9) | -7.01 | <0.00001 | 0.577 |
| Social distance/sympathy | 7 (45.7) | 35 (38.8) | -6.30 | <0.00001 | 0.661 |
| Obesity/wheelchair use | -40 (23.3) | -14 (32.4) | -9.96 | <0.00001 | 0.921 |

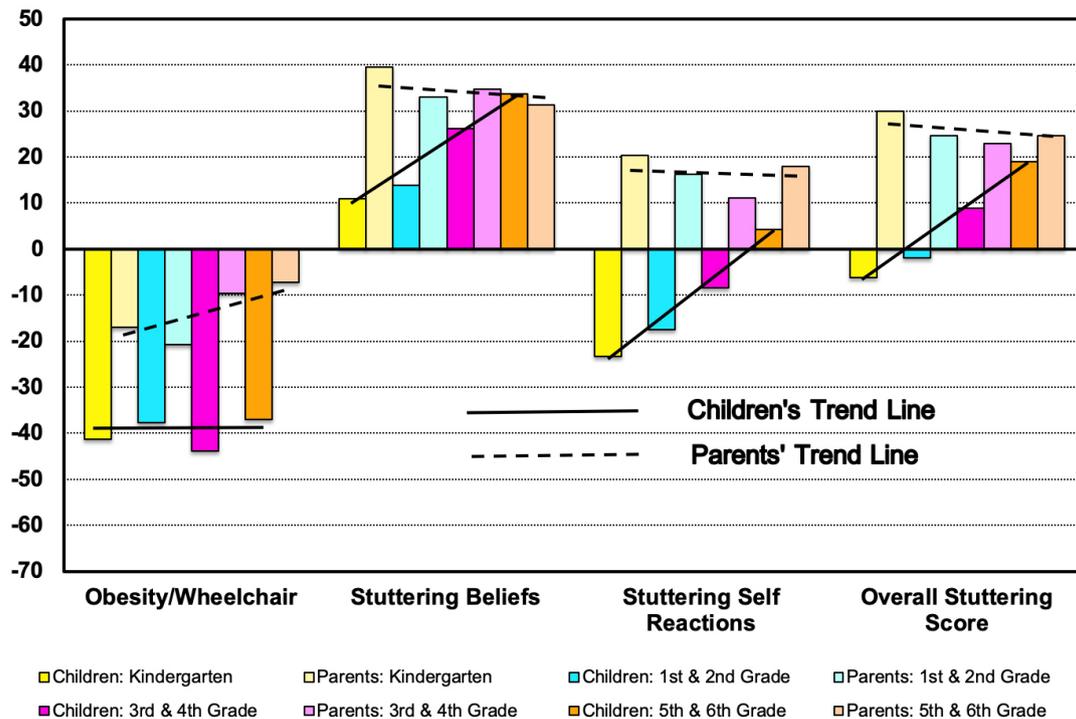


Figure 2. Child versus parent means for POSHA-S and POSHA-S/Child Overall Stuttering Score and Subscores as well as trends according to children's grade levels.

tories of children and parent attitudes. The darker colored bars represent the children's scores by cohort, which are contrasted to parent scores by cohort in a lighter shade of the same color. As can be seen on the solid black trend line, it is clear that children's stuttering attitudes increase predictably with age, compared to parent attitudes which are more stable. One exception is the Obesity/Wheelchair Subscore, in which the child cohorts reported similar — and markedly lower — attitudes compared to the parent group.

DISCUSSION

This study sought to compare the stuttering attitudes of children and their parents from Bosnia & Herzegovina (B&H). Children were grouped into one of four cohorts: kindergarten, early elementary (i.e., first and second graders), middle elementary (third and fourth graders), and upper elementary (i.e., fifth and sixth graders). The children and parents completed respective versions of the *POSHA-S*, and results between the groups were compared and further analyzed based on the age of the child. Overall, children's attitudes improved with age, with the youngest children holding the worst stuttering attitudes, and the oldest children holding the most positive or informed attitudes. Compared to the parent group, the youngest cohort held significantly worse attitudes, but such differences were not observed between parents and the oldest cohort.

Changes in children's stuttering attitudes

As a whole, the four cohorts held relatively positive attitudes related to the potential of a person who stutters to make friends, make good choices, and have any job as an adult. On the other hand, however, the four cohorts generally held unfavorable attitudes about the traits of people who stutter and had limited knowledge about stuttering causes or how to sensitively react to a person who stutters. Even at the upper elementary level, children maintained stereotypical beliefs that people who stutter are nervous or shy and "unable to talk well."

In examination of the children by cohort, important differences emerged, thus upholding our first hypothesis that children's attitudes would steadily increase with age. The Self Reaction, Beliefs, and Overall Stuttering Scores increased across all four cohorts, with OSS improving 4 units between kindergarten and early elementary, 7 units between early and middle elementary, and 10 units between middle and upper elementary. That the youngest cohort held the worst attitudes overall is not surprising. In fact, it upholds previous stuttering

research which suggested cognitive and social development may explain attitudinal differences between younger and older children [16,20,22]. Differences between the youngest and oldest cohorts are particularly salient. Between kindergarten and upper elementary, children's OSS increased to a significant degree (+25 units, $p < 0.00001$), and all component scores increased. Older children were less likely to believe that children who stutter are at fault for their stuttering and had more sensitive Self Reactions when talking with a person who stutters. For example, older children were less likely to say, "slow down" or "finish the words [of a person who stutters]." This can likely be contributed to the fact that older children are more mature in the domains of social cognition and, by parent report, had more frequent experiences with/exposure to people who stutter. In examination of the children as a group and by cohort, we advance that, although attitudes improve with age, evidence of a negative stuttering stereotype is evident across elementary-aged children in B&H.

Child and parent comparisons

Overall, parents held better attitudes than the children in each of the cohorts; however, those differences were more pronounced between the parents and youngest children. Significant differences existed between the parent and kindergarteners for Overall Stuttering Score (kindergarteners = -6, parents = 26, $p < 0.00001$), Beliefs Subscore (kindergarteners = 11, parents = 35, $p < 0.00001$), and Self Reactions Subscore (kindergarteners = -23, parents = 17, $p < 0.00001$). The gap between parent-child attitude scores narrowed with older children [21, 22]. Compared to the kindergarten, early, and middle elementary cohorts, attitudes of upper elementary children most closely aligned with parent attitudes. Specifically, there were no significant differences between the groups' Overall Stuttering Score (upper elementary = 19, parents = 26) and Beliefs Subscore (upper elementary = 34, parents = 35). However, a significant difference existed for the Self Reactions Subscore (upper elementary = 4, parents = 17, $p < 0.002$).

Attitude comparisons between B&H and US samples

This study is a replication of Glover et al. [22], who investigated the stuttering attitudes of 150 preschool through fifth grade American children and their parents. As a whole, attitudes of the American children held more positive stuttering attitudes than the B&H children. This was true for OSS (American = 11, B&H = 3), Self Reactions (American = -2, B&H = -13), and Beliefs (American = 24, B&H = 19) and all but one compo-

ment score (i.e., Traits). This pattern was also observed for each cohort of children (i.e., preschool/kindergarten, early, middle, and upper elementary). At this time, it is premature to determine why US children held slightly elevated attitudes. One might advance that the special educational services and inclusivity practices in the US are more established compared to B&H [25]. Thus, the US sample may have had more exposure to peers with diverse abilities, but this cannot be confidently supported based on the results from the current study. Future examinations might consider the influence on children's exposure to disabilities and differences in general, not just the traits investigated in this study (i.e., stuttering, obesity, and wheelchair use).

It should be explained that children in the B&H kindergarten cohort also include, by American classifications, preschool-aged children. Therefore, the mean age in the American preschool and kindergarten groups combined was similar to the B&H kindergarten sample (i.e., 5.18 years and 5.21 years, respectively). In addition, the American sample did not include sixth grade children, thus slightly elevating the mean age of the oldest cohort in the B&H group (American = 10.5 years, B&H = 11.6 years). Despite lower attitudes overall, the B&H children showed a similar upward trajectory of attitudes with age. American children's attitudes converged with their parents at a slightly younger age (i.e., fourth and fifth grade), opposed to similar attitudes among B&H parents and sixth graders. In a study of Turkish children and their families, Özdemir and colleagues [21] also identified convergence of child and parent attitudes around sixth grade. It must be remembered that in that study, only the *POSHA-S* was administered. More research will need to be carried out to determine whether or not sixth grade is a consistent "point of attitudinal convergence" in other cultures as well. Interestingly, American children's ratings for Obesity/Wheelchair worsened with age, while they remained fairly stable across the B&H cohorts. Despite this finding, Obesity/Wheelchair ratings were quite low in both groups (American = -37, B&H = -40).

Stuttering attitudes of neither the American nor B&H parent groups were influenced by the age of their children. Unlike the child groups in which the American children held slightly better attitudes, attitudes between American and B&H parents were comparable for OSS (American = 25, B&H = 26), Self Reactions (American = 8, B&H = 17), and Beliefs (American = 42, B&H = 35). That American children - but not American parents - held slightly elevated attitudes compared to the respective B&H groups is unclear. Results such as these

should continue to be investigated with additional diverse samples to further examine whether or not children's stuttering attitudes are generally higher in some cultures.

Limitations and future research

Although these results reflect a robust sample of children from B&H and their families, the sample is restricted to one geographic region of B&H. This is particularly important, given B&H is comprised of three distinct regions characterized by differences in spoken dialect and religious practices, even though small differences were observed among them for adults [11]. Accordingly, caution should be exercised in generalizing our results to all regions of the country.

At this time, this and previous studies uphold the notion that children's stuttering attitudes improve in conjunction with their social and cognitive [16,20-22]. Improvements in social awareness, perspective taking, and a more diverse social experiences might factor into children's understanding about stuttering and people who stutter, which has been posited in related research on stigma development [15]. However, it is still premature to confidently advance such claims. It will be important for future research to consider how the results from this and the preceding Glover et al. [22] study compare to samples in different cultures or regions.

The continued expansion of this line of research will not only contribute to epidemiological advancements in this area but will help to identify populations at "high risk" for holding misinformed or negative attitudes, so that appropriate and swift attitudinal improvement efforts can take place. Based on this and previous research, it seems that preschool and kindergarten aged children are among those at "high risk" for negative stuttering attitudes, thus potentially warrant priority in educational efforts to mitigate negative stuttering attitudes. Weidner et al. [14] reported an effective stuttering educational program for young children called the *InterACT* program [29], which might be considered in attitude betterment efforts. Educational programs, coupled with the collective - and persistent - efforts of researchers and practitioners, will be the necessary elements to ultimately improve children's stuttering attitudes and promote a more tolerant and accepting communication environment for people who stutter.

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Appendix A. POSHA–S/Child means for all items, components, subscores, and Overall Stuttering Score (OSS) for 186 children from Kindergarten through sixth grade (Columns 1-4) and all children combined (Column 5) as well as POSHA–S means for all 186 parent (Column 6)

| POSHA–S/Child means | Kindergarten | 1st & 2nd grades | 3rd & 4th grades | 5th & 6th grades | Children all | Parents all |
|---|-----------------|------------------|------------------|------------------|-----------------|-------------|
| Column | 1 | 2 | 3 | 4 | 5 | 6 |
| Overall stuttering score | -6 | -2 | 9 | 19 | 3 | 26 |
| Beliefs: about children who stutter | 11 | 14 | 26 | 34 | 19 | 35 |
| Traits/personality | -16 | -5 | 6 | 30 | 1 | 39 |
| Blame (at fault) ^a | 8 | 52 | 89 | 89 | 53 | 62 |
| Nervous ^a | -7 | -7 | 9 | 0 | -2 | 77 |
| Shy ^a | -24 | -9 | -56 | 9 | -20 | -23 |
| Something bad ^a | -2 | 17 | 52 | 74 | 30 | — |
| Can talk well | -57 | -78 | -65 | -20 | -57 | — |
| Help from | 12 | 17 | 24 | 27 | 19 | -1 |
| SLP | 70 | 83 | 100 | 90 | 84 | 98 |
| Stutterers | 5 | 12 | -14 | -11 | -1 | -47 |
| Parent | 43 | 61 | 89 | 90 | 67 | — |
| Doctor ^a | -70 | -87 | -78 | -62 | -74 | -52 |
| Cause | -6 | -17 | 7 | -4 | -6 | 30 |
| Genetic | 3 | -19 | -60 | -29 | -22 | 6 |
| Learning ^a | -32 | -42 | -9 | 6 | -23 | 74 |
| Something bad ^a | -38 | -14 | 3 | -32 | -22 | — |
| Fright ^a | — | — | — | — | — | -56 |
| Act of god ^a | 12 | 11 | 12 | 0 | 9 | 10 |
| Virus/disease (germs) ^a | 14 | 0 | 68 | 50 | 28 | 54 |
| Ghost/demon/spirit (invisible) ^a | 5 | -40 | 26 | -21 | -8 | 94 |
| Potential | 54 | 60 | 68 | 82 | 64 | 72 |
| Make friends | 87 | 78 | 100 | 85 | 87 | 100 |
| Normal life (do same things as others) | 22 | 52 | 33 | 75 | 43 | 98 |
| Do any job (any job as adult) | 50 | 65 | 68 | 88 | 65 | 51 |
| Job requiring good judgment (can make good choices) | 58 | 45 | 71 | 83 | 62 | 40 |
| Self Reactions: to children who stutter | -23 | -18 | -8 | 4 | -13 | 17 |
| Accommodating/helping | 5 | 34 | 47 | 60 | 33 | 54 |
| Ignore | 15 | 78 | 79 | 85 | 59 | 96 |
| Me (I should help) | 7 | 64 | 49 | 35 | 35 | -36 |
| Finish words ^a | -19 | -22 | 15 | 45 | 1 | 57 |
| Say "slow down" ^a | -41 | 4 | -6 | 32 | -7 | 20 |
| Joke (laugh) ^a | 64 | 83 | 100 | 85 | 81 | 88 |
| Hide ^a | 2 | -2 | 46 | 79 | 26 | 96 |
| Social distance/sympathy | 10 | -14 | 6 | 28 | 7 | 35 |
| Comfortable (fun to play with) | 60 | 51 | 87 | 73 | 65 | 88 |
| Bothered ^a | 38 | 65 | 85 | 95 | 67 | — |
| Pity (feel sorry for them) ^a | 15 ^b | 78 ^b | 89 ^b | 67 ^b | 57 ^b | 82 |
| Impatient ^a | — | — | — | — | — | 96 |
| Patient | 43 | 96 | 95 | 90 | 77 | — |
| Doctor ^a | 18 | -61 | 5 | 30 | -2 | 72 |

(Continued to the next page)

Appendix A. Continued

| <i>POSHA-S/Child</i> means | Kindergarten | 1st & 2nd grades | 3rd & 4th grades | 5th & 6th grades | Children all | Parents all |
|-----------------------------------|--------------|------------------|------------------|------------------|--------------|-------------|
| Teacher ^a | 3 | -74 | -57 | -20 | -33 | — |
| Neighbor ^a | -3 | -52 | -24 | 35 | -12 | 68 |
| Friend ^a | -18 | -78 | -59 | -13 | -41 | — |
| Parent ^a | -13 | -78 | -84 | -26 | -47 | — |
| Brother or sister ^a | -21 | -78 | -56 | -3 | -38 | -22 |
| Myself ^a | -15 | -65 | -74 | -49 | -47 | -33 |
| Preference | 19 | 31 | 65 | 58 | 40 | — |
| Impression | — | — | — | — | — | 26 |
| Want to stutter | — | — | — | — | — | -59 |
| Knowledge/experience (experience) | -85 | -73 | -78 | -76 | -79 | -42 |
| Amount known | — | — | — | — | — | -9 |
| Persons known | — | — | — | — | — | -88 |
| Source: personal | — | — | — | — | — | -27 |
| Informant | -95 | -96 | -91 | -93 | -94 | — |
| Child | -77 | -55 | -69 | -62 | -67 | — |
| Knowledge source | — | — | — | — | — | 20 |
| TV/radio | — | — | — | — | — | 40 |
| Print | — | — | — | — | — | 38 |
| Internet | — | — | — | — | — | 31 |
| School | — | — | — | — | — | 8 |
| Specialists | — | — | — | — | — | -17 |
| Obesity/wheelchair | -41 | -38 | -44 | -37 | -40 | -14 |
| Preference | -9 | -16 | -30 | -29 | -20 | — |
| Obesity | -14 | -7 | 17 | 32 | 4 | — |
| Wheelchair | -4 | -25 | -77 | -89 | -43 | — |
| Experience | -74 | -60 | -57 | -46 | -61 | — |
| Obesity | -55 | -38 | -25 | -19 | -37 | — |
| Wheelchair | -92 | -81 | -90 | -72 | -85 | — |
| Impression | — | — | — | — | — | 22 |
| Obese | — | — | — | — | — | 3 |
| Wheelchair | — | — | — | — | — | 41 |
| Want/have | — | — | — | — | — | -71 |
| Obese | — | — | — | — | — | -72 |
| Wheelchair | — | — | — | — | — | -70 |
| Amount known | — | — | — | — | — | 6 |
| Obese | — | — | — | — | — | 14 |
| Wheelchair | — | — | — | — | — | -2 |

^aMean ratings inverted so that higher scores reflect more accurate, sensitive attitudes; ^bRatings for “Pity (Feel sorry for)” are not inverted for the *POSHA-S/Child* because feeling pity is regarded as a positive attitude for young children.