Improving Social Interaction Among Primary School Students with Stuttering

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Abstract

The research aimed to examine the effectiveness of a guidance program in enhancing social interaction abilities among elementary school students with stutteringwho have a stutter. The sample consisted of 20 students, divided into two groups. Prior to the intervention, both groups were assessed using a social interaction scale. Subsequently, the experimental group underwent the 17-sessions experimental variableguidance program, which involved awith 17-sessions which guidance program aimed at developing social interaction skills. On the other hand, the control group did not receive any intervention. Following the intervention, the same social interaction scale was administered to both groups. The results indicated statistically significant differences between the levels of social interaction in the experimental group and the control group, favoring the experimental group. Additionally, there were no statistically significant differences between the average ranks of the two measurements (post-follow-up) concerning social interaction among elementary school students who stutter in the experimental group.

INTRODUCTION

Language is a fundamental aspect of human life, serving as a crucial means of communication and interaction within society. It encompasses more than mere symbols, sounds, or gestures, as it enables individuals to express thoughts and desires while reflecting their personality. Language plays a vital role in conveying and acquiring information, connecting individuals within a society (Gee, 2001).

The process of language and speech involves various factors, including organic functions and the influence of psychological, health, social, and educational aspects. Language skills facilitate successful communication, understanding, problem solving, and the acquisition of values and attitudes (Kuball & Peck, 1997). It is an essential attribute for interaction and flexible adjustment to different listeners and social situations. Language development may be affected in individuals with special needs, leading to impairments such as limited linguistic output or structures. Conversational or expressive language is an important means of conveying thoughts and feelings, contributing to social life.

Stuttering, a fluency disorder hampers communication and self-concept, affecting individuals' ability to express themselves and interact with their environment (Nousia et al., 2022). Social interaction, relying on verbal and nonverbal communication, is the foundation of social systems and requires self-confidence and mutual trust. Individuals with social

disabilities, including those who stutter, may require training to improve their social skills and engage with their peers effectively (Umadevi & Sukumaran, 2012).

This study holds potential contributions in various aspects. Firstly, it may aid in organizing training courses for families of stuttering children, providing them with valuable support and strategies for effectively dealing with their children's stuttering. Secondly, it has the potential to enrich the existing psychometric library by introducing a new scale specifically focused on social interaction, alongside the counseling program. Lastly, this research may open up broader avenues for future studies and research on stuttering children, shedding light on the associated problems arising from their speech disorders and stuttering, thereby advancing our understanding and knowledge in this field.

Literature Review

Several studies have explored various aspects of stuttering and its social consequences (Berquez & Kelman, 2018; Byrd et al., 2018; Murphy et al., 2007; Obiweluozo et al., 2021; Scott et al., 2012). Various researchers have previously studied the effectiveness of guidance programs in addressing social withdrawal behaviors and reducing stuttering among children. Mulcahy's study (2008) examined the relationship between social anxiety, daily communication, and stuttering severity in adolescents. The results suggested that there were no significant associations between social anxiety, communication difficulty, and stuttering. This finding was consistent with Langevin's study (2010), which focused on parental perceptions of the impact of stuttering on preschool children and themselves. The study revealed that children who stutter often experience frustration, shyness, social withdrawal, verbal fluency issues, peer avoidance, while parents reported feelings of anxiety, frustration, annoyance, and self-blame.

Erickson & Block's study (2013) aimed to uncover the social and communicative effects of stuttering on Australian adolescents and their families. The study found that stuttering adolescents exhibited below-average communication competence, withdrawal, and social shyness. They also experienced increased fear of social interaction, bullying, and peer rejection. The families of these adolescents reported high levels of emotional tension, conflicts, and challenges in coping with their children's frustrations.

Additionally, Abu Al-A'la (2013) examined the relationship between self-concept and psychological and social adaptation in stuttering children. The study highlighted a positive correlation between self-concept and levels of psychological and social adaptation. Furthermore, gender differences did not significantly impact psychological and social adaptation levels in stuttering children.

In addition, El-Qadi (2016) focused on the effectiveness of a cognitive-behavioral guidance program in improving social competence and reducing peer victimization among stuttering children. The results indicated that the guidance program led to enhanced social competence and a reduction in victimization by peer bullying in the experimental group compared to the control group.

Furthermore, a study Nabil (2020) examined the effectiveness of a guidance program based on some techniques of positive psychology in reducing social anxiety among elementary school students who stutter. The research aimed to design a guidance program that incorporates some positive psychology techniques to reduce social anxiety. The study was conducted on a sample of stuttering elementary school students in the second and third grades in Port Said Governorate, Egypt. The participants were all male and aged between 7 and 8 years old. The study utilized the Intelligence Test, the Stuttering Scale, and the Social Anxiety Scale for Stuttering Children (Teacher's Assessment, prepared by the researcher). The guidance program was based on some positive psychology techniques aimed at reducing social anxiety among elementary school students who stutter. The results of the study revealed statistically significant differences between the mean scores of the experimental group and the control group in the

dimensional measurement of the Social Anxiety Scale for Stuttering Children (Teacher's Assessment), indicating the effectiveness of the proposed guidance program.

Besides, Berchiatti et al. (2020) demonstrated the effectiveness of a selective guidance program in reducing social withdrawal behaviors among stuttering children in primary schools. Park et al. (2016) confirmed the effectiveness of virtual reality therapy in reducing withdrawal behaviors among preschool children. Boyle et al. (2016) study highlighted the effectiveness of a guidance program based on social story strategy in developing self-confidence and reducing stuttering among elementary school children.

Collectively, these studies contribute to our understanding of the social implications of stuttering and highlight the importance of addressing psychological and social factors to improve the well-being and communication skills of individuals who stutter. These interventions contribute to enhancing social interaction and improving communication skills in children with stuttering as well.

Rationale of the Study

Stuttering not only affects speech but also hinders social life, leading to additional pressure and potential negative coping methods. It limits communication, participation, and interaction with others, resulting in feelings of inadequacy, lack of confidence, social withdrawal, and fear of speaking. Early intervention is crucial to help individuals with stuttering overcome isolation and improve their social interactions (Bara, 2021).

Guidance and therapeutic interventions have shown effectiveness in reducing the severity of stuttering and promoting normal communication (Connery et al., 2021). Studies have highlighted the positive impact of training programs, guidance programs, and interventions based on positive psychology techniques in improving social interaction and reducing social anxiety among individuals with stuttering. However, there is a lack of studies in this area. Therefore, the research problem revolves around studying the effectiveness of a guidance program in improving social interaction among elementary school children with stuttering and assessing the differences in social interaction scores before and after the program.

Aims and Hypotheses

In light of the research questions, the research objectives can be formulated in a procedural manner. This research aims to test the effectiveness of a guidance program in improving social interaction among a sample of stuttering children in the elementary stage. In addition, the following sub-objectives are sought to be achieved: 1) Improve social interaction among a sample of stuttering children in the elementary stage and 2) Verify the effectiveness of a guidance program in improving social interaction among a sample of stuttering children in the elementary stage.

Based on the theoretical framework and previous studies presented, the current research Hypotheses can be formulated as follows: 1) There are no statistically significant differences between the mean ranks of the two groups (experimental and control) on the social interaction scale among a sample of stuttering children in elementary school in favor of the experimental group, 2) There is no statistically significant increase in social interaction among the participants in the experimental group as measured by the post-test application of the social interaction scale, and 3) There are no statistically significant differences between the mean ranks of the post-test and follow-up measurements in improving social interaction among the experimental group of elementary school stuttering children.

METHODS

The researcher adopted a quasi-experimental method to verify the effectiveness of the guidance program (independent variable) in developing social interaction (dependent variable)

among elementary school children who stutter. The research sample was divided into two equal and homogeneous groups. One group was the experimental group exposed to the guidance program, while the other group was the control group that did not receive the program. To assess the sustainability of the program, the program was applied to the experimental group two months after the baseline measurement (follow-up measurement), and the differences in the average scores of the children on the baseline and follow-up measurements of the social interaction scale were determined.

The main sample of the current study consisted of 20 stuttering children with ages ranging from 6 to 7 years. They were purposefully selected and randomly divided into two groups: 10 participants in the experimental group and 10 participants in the control group. The researcher chose the Academic Development Center in Al Qurain city, as it approved and welcomed the application of the study. The center provided a suitable environment with proper lighting, ventilation, and a distance from sources of noise.

Additionally, the center's staff cooperated, and it served as the researcher's workplace, as she works as a speech therapist at the center. The researcher considered several criteria when selecting the sample, including the age range of 6 to 7 years, homogeneity in terms of socioeconomic and sociocultural levels, and ensuring that the participants had not previously received any programs for stuttering reduction or social interaction development. Furthermore, the participants were required to have regular attendance at the center, as the program required consistent attendance to ensure the acquisition of the targeted skills. The researcher conducted interviews with the parents of the participants, explaining the program's concept and obtaining written consent for their children's participation in the program.

Instruments
The researcher utilized the following research tools, Stuttering test

This test was translated to Arabic language by Nahla Elrefaay, 2001 and aimed to diagnose stuttering in children and the elderly. The test measures the frequency of stuttering, the length of the moment of stuttering, and the movements and sounds that accompany stuttering (Al-Tantawi, 2020). The test dimensions were explained as follows.

Repetition of Stuttering Occurrences

The person who stutters is asked to describe the picture presented to them. Pictures are presented one after another while recording the person's speech using a recorder. 1) Wait for the child to comprehend the picture and then start describing. 2) Clarifying questions can be used to assist the child. 3) As the child starts speaking, the examiner tracks stuttering occurrences by marking each word with a period (.) for fluent words and a forward slash (/) for stuttered words. Make sure each word has a small box next to it. 4) Use some or all of the pictures to obtain 150 words.

After filling all 150 boxes, calculate the percentage of stuttered words by counting the stuttered words (/) after excluding the first row of boxes (25 words) and the last row of boxes (25 words). Write this percentage in the designated box on the side of the small boxes (the percentage now becomes a degree in degrees Celsius). Using the Stuttering Occurrence Table for those who do not read, found at the beginning of the answer sheet (Test "J"), convert the percentage into a degree and write it in the designated box (degrees ranging from 0 to 18).

Stuttering Moment Duration

The duration of the longest three stuttering moments is calculated for every 150 words (using the audio recording if necessary). These durations are then averaged and converted to a degree according to the table on the first page of the answer sheet (Test "I"). Write the degree in the designated box (degrees ranging from 1 to 7).

Table 1. Scoring system of the stuttering scale for students

Total Score	Stuttering Severity
0 - 19	Very Mild
20 - 22	Mild
23 - 30	Moderate
31 - 33	Severe
34 - 45	Very Severe

Accompanying Movements and Sounds

These are observed during the recording of the 150 words and are detailed in the first table on the answer sheet. The examiner assigns a score based on the scale in the table and records it in the designated box (scores ranging from 0 to 20). The scores from the three test items are summed up and written in the designated box (scores ranging from 0 to 45). Using Table (1), which describes the severity of stuttering for children, convert the total score into a severity rating, either Very Mild, Mild, Moderate, Severe, or Very Severe.

Children's Social Interaction Scale

The scale was developed by El-Sersy, Abdel-Maqsoud, 2016 in Arabic language. This scale aims to measure social interaction in children and consists of 38 statements that assess social interaction. It was individually administered by the researcher by selecting one of three choices that best aligns with the child's condition. Always (earning 3 points), Sometimes (earning 2 points), or Never (earning 1 point). This results in a minimum scale score of 38 and a maximum scale score of 114.

Guidance Program (Prepared by the researcher in Arabic language)
Reliability of the Stuttering Scale

Reliability of a scale refers to its ability to produce consistent results when administered multiple times under the same conditions. In other words, it indicates the stability of the scale's results and their minimal variation when administered to the sample multiple times over specific time intervals. The test-retest method was applied, where the test was administered to the study sample, and then re-administered after one month. The correlation coefficient between the scores of the two administrations was calculated using Pearson's correlation coefficient. The results showed statistically significant correlations at a significance level of 0.01 or less. The correlation coefficient for the frequency dimension of stuttering was 0.79, for the duration dimension of stuttering was 0.86, for accompanying movements and sounds was 0.9, and the overall total was 0.92. Based on these results, the Stuttering Scale demonstrates high reliability and can be applied effectively.

Reliability of the Children's Social Interaction Scale

The researcher assessed the reliability of the Children's Social Interaction Scale using Cronbach's alpha coefficient. The results showed that the value of Cronbach's alpha coefficient was 0.811, indicating high reliability. The scale's reliability was also confirmed using the split-half method, where the test items were divided into two halves (odd-numbered items and even-numbered items). The correlation coefficient between the scores of the odd-numbered and even-numbered items was calculated, and then the correlation coefficient was corrected using Spearman-Brown formula. The Spearman coefficient was 0.871, and the Guttman coefficient was 0.862. Thus, the researcher confirmed the validity and reliability of the scale in its final form, making it suitable for application in the primary study sample. This provides the researcher with complete confidence in the accuracy and suitability of the scale to collect the necessary data to answer the research questions.

The Guidance Program Used in the Research
General Objective of the Program

The overall objective of the program is to improve social interaction among stuttering children and test the effectiveness and sustainability of the program among stuttering children aged 6-7 years.

Operational Objectives of the Program

Derived from the general objective of the program are a set of operational sub-objectives that the program aims to develop among the stuttering children in the current research. These operational objectives are achieved through constructive work within the sessions and through the implementation of home activities assigned to the stuttering children with the assistance of their parents. The following are the most important objectives. Provide mothers with information about the guidance program and the feasibility of their participation in the training. Develop cognitive, emotional, and skills behavior among children through remembering, analyzing, understanding, synthesizing, applying, evaluating, imitating, experimenting, mastering, practicing, responding, and receiving.

The Importance of the guidance Program

The importance of the guidance program lies in its reliance on guiding children and training them to improve the social interaction of stutterers. Assisting mothers in understanding their children's condition and providing them with psychological support. Helping mothers acquire knowledge on how to interact with their children and emphasizing the role of the family in assisting their stuttering children. The program can be utilized as a scientific model for guiding and training stuttering children. The need for stuttering children to have guidance and training programs to improve social interaction.

Techniques Used in the Program

Reinforcement, it can be defined as a behavioral process that involves strengthening behavior. The idea behind reinforcement is that a child tends to repeat behaviors that lead to positive outcomes or relieve them from negative consequences. Reinforcement can be categorized into two main types: positive reinforcement and negative reinforcement. Positive reinforcement refers to any action that leads to an increase in a specific behavior or its repetition and results in positive outcomes for the child. Negative reinforcement, on the other hand, involves the removal of an aversive stimulus, which strengthens the behavior. Reinforcement is considered one of the most important techniques and strategies used in behavior modification with children because it strengthens behavior and should be used in most objectives to achieve the best possible results.

Home Activities, these are a set of behavioral activities and patterns that are assigned after each session based on the session's goals. The counselor is responsible for implementing these activities at home. They are designed in a sequential manner to be implemented in stages. Home activities represent the tasks and responsibilities assigned to the guidance group member outside the sessions. They work towards achieving the guidance objectives in their respective types and transfer the positive impact they have learned, trained, and practiced to their family and social duties.

Dialogue and Discussion, this technique involves a collaborative group that selects a specific problem, determines its dimensions, analyzes its aspects, proposes solutions, and selects the solution to achieve effective and successful outcomes.

Role Play, role-play is one of the techniques that have a positive impact on children in general. It allows the child to freely assume any role, whether it is a realistic character like a

student or an imaginary character like a parent. Through role-play, the progress of the child can be assessed based on the roles they perform.

Feedback, feedback involves providing information that allows improvement in motor or cognitive responses based on previous information or responses.

Modeling, modeling, or learning by example, is one of the behavioral techniques that can be used in conjunction with other techniques such as shaping, sequencing, and prompting. It involves modeling the desired response for the child, requiring the child's attention to the model used, and then imitating what is being done, such as imitating breathing techniques during inhalation and exhalation.

Rhythmic Speech, this method is based on the premise that the degree of stuttering decreases when the stutterer speaks rhythmically. A metronome is used to facilitate the pronunciation of each section with a specific rhythm. The metronome divides the passages into equal time intervals, and the speech segments are delivered according to the metronome's timing. This method divides the reading material into simple words that are read in harmony with the metronome, resulting in gradual progress in speech.

Relaxation, this method leads to relaxation of the body muscles and gradually reduces the effect of emotional activity, resulting in a sense of comfort and relief from physical and mental fatigue. At the same time, it helps with mental calmness and ease of fluent speech during relaxation. Then, the treatment is conducted through exercises in deep thinking and speaking with deep breathing.

Shadowing Therapy, shadowing therapy refers to the stutterer repeating the spoken words immediately after the therapist while focusing on the therapist's speech and paying attention to it. This repetition should occur with a very short time delay, so that the stutterer's speech acts as a shadow of the therapist's speech.

Contents of the training program sessions

The guidance program consists of 17 sessions, divided into two stages, each comprising several sessions as illustrates in Table 2.

Procedures

After preparing the theoretical framework and reviewing previous studies, the researcher explored language measures and selected the appropriate Arabic Language Assessment (prepared by Abu Huseibah) for the study sample, as well as diagnostic tools for stuttering, including Nahla El-Rafaie's scale. The researcher also reviewed social interaction measures and chose Asmaa El-Sersy's Social Interaction Scale, along with referencing other programs for guidance in formulating the study's tools.

The researcher developed the program based on the chosen tools and presented it to the supervisors, who evaluated it through the expertise of specialized professors in the field. After obtaining approval for the field application of the study, the researcher visited the chosen academy, where the conditions for sample selection were met, and the participants' scores were recorded. The academy's administration approved the field application, and the researcher observed their willingness to benefit as much as possible from the provided program. The cooperation of the staff was noticed, as they assisted in selecting the study sample and provided a suitable space for implementing the program sessions.

The researcher conducted a pilot study on the study's tools to ensure their validity and suitability for the study sample, considering their characteristics and diverse abilities, as well as the alignment of the tools with the study's objectives and the selection of the primary study sample of children. After confirming the validity of the tools and the program for implementation, the researcher conducted pre-test measurements to assess the level of equivalence between the experimental and control groups.

Table 2. Structured guidance program for students with stuttering: stages and sessions.

Stage	Session	Topic	Duration
First Stage	1	Introduction between the researcher and the children.	30 minutes
	2	Understanding the nature of stuttering.	30 minutes
	3	Understanding the nature of social interaction and its impact on stuttering.	30 minutes
Second Stage	4	Developing auditory attention and perception while improving speech organs' efficiency.	45 minutes
	5	Developing visual attention.	45 minutes
	6	Relaxation and self-regulation.	45 minutes
	7-9	Generating audio clips, words, and sentences composed of four words while self-regulating through the blocking technique.	45 minutes each
	10	Automatic speech using the blocking technique.	45 minutes
	11	Generating words and sentences composed of four words using rhythmic speech.	45 minutes
	12	Automatic speech using rhythmic speech.	45 minutes
	13	Generating words and sentences composed of four words through synchronized reading.	45 minutes
	14	Reading using shadowing therapy.	45 minutes
	15	Interacting with the counseling group and interacting when meeting others.	45 minutes
	16	Overcoming negativity.	45 minutes
	17	Expressing empathy, helping others, and forming friendships.	45 minutes

Upon completing the program sessions, the researcher conducted post-test measurements using the study's tools on both the control and experimental groups to test the research hypotheses and achieve the study's objectives. After one month of the post-test application, the researcher conducted follow-up measurements using the study's tools to ensure the continued effectiveness of the program's impact. After completing the program implementation and conducting post-test and follow-up measurements using the study's tools, the researcher performed statistical analysis of the collected data to test the research hypotheses.

Finally, the researcher analyzed and presented the results according to the research hypotheses, interpreting them in light of the theoretical framework and previous studies. The researcher also provided recommendations and suggestions based on the findings.

Data analysis

To achieve the study objectives and analyze the collected data, several appropriate statistical methods were used using the Statistical Package for the Social Sciences (SPSS). The data was coded and entered into the computer, and the following statistical methods were employed: 1) Checking the internal consistency of the scale by calculating the Pearson correlation coefficient between each domain and the total score of the scale, 2) Ensuring the scale's stability by calculating Cronbach's alpha coefficient, 3) Utilizing means and standard deviations for descriptive analysis of the sample responses, 4) Applying non-parametric statistical methods, such as the Mann-Whitney test, to compare independent groups (scores of the control group and experimental group), and 5) Employing the Wilcoxon test to compare related samples (pre-test, post-test, and follow-up scores) within the same group.

RESULTS AND DISCUSSION
Results

Demographic data of the study sample, table 3 indicated that the chi-square values are not statistically significant for all variables. These results indicated that there are no statistically significant differences between the experimental and control groups in these variables (age,

Table 3. Demographic data of the respondents and the equivalence between the Experimental (N = 10) and Control (N = 10) Groups in Variables (Age, Family Socioeconomic Status, Stuttering Severity)

Variable		Group		Total	r	p
		Experimental	Control			
Age	6 years	4	5	9	.25	.882
	7 years	6	5	11		
Socioeconomic	Below Average	6	5	11	1.5	.221
	Average	4	5	9		
Stuttering	Severity Moderate	9	6	15		
	Severe	1	3	4	2.6	.273
	Very Severe	0	1	1		

Table 4. Mean, standard deviation, and results of Mann Whitney test for the experimental (N = 10) and control (N = 10) groups on the post-test of the social interaction scale

Group	M	SD	z	p
Experimental	2.2	.19	-3.63	.00**
Control	1.63	.19		

**significant at level of 0.01

Table 5. Mean, standard deviation, and results of Wilcoxon test of Experimental Group's (N = 10) Pre, Post, and Follow-up test of Social Interaction Scale

No	Test	M	SD	z	p
1	Pre	1.85	.27	-2.803	.005**
	Post	2.20	.19		
2	Post	2.20	.18	-1.318	.187
	Follow-up	2.19	.18		

**significant at level of 0.01

family socioeconomic status, stuttering severity), indicating the equivalence of the two groups in these variables.

Results of Hypotheses Tests

The researcher provides a description of the research sample, including the means and standard deviations of the experimental group's scores in the pre-test and post-test of the social interaction scale and the control group's scores in the post-test of the social interaction scale. The researcher also discusses the study's findings to verify the hypotheses' results. The first hypothesis stated that there are no statistically significant differences between the means of the two groups (experimental and control) on the social interaction scale among a sample of stuttering children in the primary stage, in favor of the experimental group.

To verify the validity of this hypothesis, the researcher used the Mann-Whitney test for independent samples as an alternative to a t-test for independent samples. This was due to the small sample size, which did not meet the assumption of distribution normality, a prerequisite for using a t-test. The following table presents the results of the statistical analysis for this hypothesis.

From Table 4, it can be observed that the average scores of the experimental group on the social interaction scale were M = 2.20 with a SD = .19, compared to the average scores of the control group on the social interaction scale, which were M = 1.63 with a SD = .19. Therefore, Table 5 indicates the presence of a significant difference at a level of .01 or less between the scores of the experimental and control groups in social interaction after implementing the guidance program. This supports the acceptance of the alternative hypothesis stating, "There are statistically significant differences between the mean ranks of the two groups (experimental

and control) on the social interaction scale among a sample of elementary school stuttering children in favor of the experimental group".

The second hypothesis states that "There is no statistically significant increase in social interaction among the participants in the experimental group as measured by the post-test application of the social interaction scale". To test the validity of this hypothesis, the researcher employed the Wilcoxon Signed Ranks Test as an alternative to the paired samples t-test. The following table presents the results of the statistical analysis for this hypothesis.

As shown in Table 5, the mean score of the experimental group on the pre-test measure of social interaction was M = 1.85 with a SD = .27, compared to a M = 2.20 with a SD = .19 on the post-test measure. Therefore, Table 6 indicates statistically significant differences in the performance of the experimental group on the pre-test and post-test measures of social interaction among a sample of elementary school children who stutter, with a significance value lower than the level of significance (p = .01). Based on these findings, the alternative hypothesis stating that "there is a statistically significant increase in social interaction among the participants in the experimental group as measured by the post-test application of the social interaction scale" can be accepted.

The third hypothesis stated, "There are no statistically significant differences between the mean ranks of the post-test and follow-up measurements in improving social interaction among the experimental group of elementary school stuttering children. To test the validity of this hypothesis, the researcher used the Wilcoxon Signed Ranks Test as an alternative to the Paired Samples T-Test, and Tables 5 presented the results of the statistical analysis for this hypothesis.

From Table 5, it is evident that the mean scores of the individuals in the experimental group on the post-test measurement of the social interaction scale were M = 2.20 with a SD = .18. Similarly, the mean scores of the individuals in the experimental group on the follow-up measurement of the social interaction scale were M = 2.19 with a SD = .18. Therefore, it is evident from Table 5 that there is no statistically significant difference in the performance of the experimental group on the post-test and follow-up measurements of social interaction among stuttering children in the elementary stage. The significance value was less than the significance level (p = .01). Based on the above, it can be concluded that the hypothesis stating the absence of statistically significant differences between the means of the two measurements (post-test and follow-up) in improving social interaction among stuttering children in the experimental group in the elementary stage can be accepted.

Discussion

The results indicated that there are statistically significant differences between the mean ranks of the two groups (experimental and control) on the social interaction scale among a sample of elementary school stuttering children in favor of the experimental group". The results also indicated statistically significant differences between the mean ranks of the pre-test and post-test in improving social interaction in a sample of elementary school children who stutter, in favor of the post-test. Moreover, the outcomes reveled that there are no statistically significant differences between the mean ranks of the post-test and follow-up measurements in improving social interaction among the experimental group of elementary school stuttering children. These results underscore the effectiveness of the guidance program in developing social interaction skills among a sample of elementary school stuttering children.

The findings of this study hold significant importance as they shed light on the positive impact of guidance programs on improving social interaction skills in children who stutter. Stuttering can have profound social and emotional consequences for these children, potentially leading to isolation and reduced self-esteem (Rani et al., 2022). The demonstrated effectiveness of guidance interventions suggests a promising avenue for early intervention and support. By enhancing social interaction skills, children who stutter can experience improved quality of life,

increased self-confidence, and better integration into social contexts, potentially reducing the stigma associated with stuttering (Nang et al., 2018). These findings underscore the importance of addressing the psychosocial aspects of stuttering and provide valuable insights for educators, therapists, and caregivers.

These results align with a study conducted by El-Qadi (2016), which indicated that the social competence of children with stuttering improved after implementing a cognitive-behavioral guidance program. The study demonstrated the effectiveness of the cognitive-behavioral program, which is one of the modern guidance methods used to enhance social competence and was utilized in the current research. Furthermore, these findings are consistent with a study by Nabil (2020) which found that applying a guidance program led to a reduction in social anxiety among stuttering elementary school students. The study relied on a guidance program based on some positive psychology techniques to reduce social anxiety. Positive psychology techniques are considered effective guidance interventions that benefit both children and adults (Luthans et al., 2008).

Additionally, these results align with the research of Yates et al. (2018) which aimed to design a selective guidance program to reduce withdrawal behavior in stuttering elementary school students. The study's results showed the program's effectiveness in reducing withdrawal behavior, which is the opposite of social interaction. The study emphasized the importance of addressing social interaction in guidance programs. These results are also consistent with the findings of Law et al. (2013), who aimed to reduce withdrawal behavior in preschool children and understand its impact on stuttering through virtual reality therapy. The study confirmed the continued effectiveness of the program even after its discontinuation through follow-up measurements. The study relied on virtual reality therapy as a significant guidance intervention in any guidance program.

These results also align with the findings of Obiweluozo et al. (2021), which aimed to design a selective guidance program to reduce withdrawal behavior in elementary school students who stutter. The study's results showed the program's effectiveness in reducing withdrawal behavior, which is the opposite of social interaction.

Despite Yates et al. (2018) which addressed the effectiveness of a guidance program based on social story strategy in developing self-confidence and its impact on reducing stuttering in elementary school children, self-confidence is one of the fundamental components of social interaction. A child cannot be socially interactive without being confident, especially since self-confidence includes confidence in social situations (Goel, 2012). Social stories are one of the fundamental guidance components that can be used to increase social interactions, as they provide models and opportunities for children to express themselves, thereby increasing their language skills and social interactions.

Moreover, a connection can be made between the results of this study and the results of the pre-test and post-test comparison for the experimental group, which showed that there is a relationship between language skills and social interaction. The program's success in developing expressive language is reflected in the child's ability to engage in social interaction. Craig et al. (2021) have indicated the close relationship between social interaction and expressive language.

The researcher agrees that social interaction is strongly influenced by the improvement that occurred in expressive language. This allows the child to interact better, as they possess the language that helps them engage in social interactions. Having language skills, both receptive and expressive, supports a child's ability to interact, express themselves, and engage in social interactions.

The researcher also sought the opinions of mothers regarding the program and its role in developing social interaction through friendly meetings that preceded the sessions. Many mothers expressed their satisfaction with the program and its effectiveness. They noticed a

strong increase in their children's initiative to engage in social interactions. The effectiveness of the program was also evident through the comments of the teachers during the repeated friendly meetings held during the implementation of the program.

Implications

The implications of this study on guidance programs for improving the social interaction of elementary school children who stutter are wide-reaching and significant. Firstly, in the realm of education, early intervention is highlighted as crucial. Schools can benefit from incorporating guidance programs aimed at enhancing social interaction skills into their curricula, not only for stuttering children but for others facing similar challenges. Teacher training is essential for creating inclusive classrooms. Secondly, parental involvement is emphasized. Parents should be educated about speech disorders and the importance of early intervention. Their support and open communication with their children can play a pivotal role in seeking help. In clinical practice, counselors and therapists should consider implementing cognitive-behavioral guidance strategies tailored to individual needs. Holistic development, encompassing social and emotional growth, is crucial, and schools should prioritize it alongside academics. Further research should explore various guidance approaches and their long-term effects, potentially in diverse cultural contexts. Advocacy for access to guidance services is vital, and professionals from different fields should collaborate. Lastly, community awareness can reduce the stigma around speech disorders, fostering a more supportive environment.

Limitations

The study's sample size was relatively small, limiting the generalizability of the findings to a larger population of children who stutter. Future research with larger and more diverse samples would provide more robust insights. The study relied heavily on self-reported data from parents and teachers, which may introduce bias or subjectivity in evaluating children's social interaction skills. Incorporating more objective measures, such as direct observations or standardized assessments, could strengthen the research. The study did not thoroughly address cultural variations in the experience of stuttering and the effectiveness of guidance programs. Cultural factors can play a significant role in shaping attitudes toward stuttering and therapy outcomes, and this warrants further exploration.

CONCLUSION

In conclusion, the findings of this study demonstrate that the guidance program implemented for stuttering children in the elementary stage has yielded statistically significant differences in social interaction scores between the experimental and control groups. The results indicate that the guidance program effectively enhances social interaction among stuttering children in the elementary stage. However, no statistically significant differences were observed between the post-test and follow-up measurements, suggesting that the program's impact on social interaction was not sustained over time. These findings highlight the importance of continued support and interventions to maintain and further enhance social interaction skills among stuttering children in the long term.

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AUTHOR CONTRIBUTION STATEMENT

All authors have read and approved the final version of the manuscript.

REFERENCES

Abu Al-A'la, N. (2013). The concept of self and its relationship to psychological and social harmony among children with late childhood stuttering. *Journal of Scientific Research in Literature*, *14*(4), 117–236. https://doi.org/https://search.mandumah.com/Record/760702.

Al-Tantawi, M. (2020). Fi'aliyat barnamaj qaim 'ala al-yaqza al-'aqli fi khifd shiddat al-tal'atham wa tahsin al-tanzim al-infi'ali linda 'aynat min al-tullatham. *Majallat al-buhuth al-'ilmiyah fi al-tarbiyah, 21(15), 212–274.* https://doi.org/10.21608/jsre.2021.146879

Bara A., A., Al- qwaqneh. (2021). The Effectiveness of a training program to reduce stuttering intensity among primary school students in Ajloun schools: 54–41 ,(14)**.** Fa'liyat barnamaj tadriby li khifd shiddat al-ta'tatah linda tulab al-marhalat al-usasiyah fi madaris muhafazat 'ajloun. *Majallat al-'ulum al-tarbiyah wa al-nafsiyah.* https://doi.org/10.26389/ajsrp.b011219

Berchiatti, M., Badenes-Ribera, L., Ferrer, A., Longobardi, C., & Gastaldi, F. G. M. (2020). School adjustment in children who stutter: The quality of the student-teacher relationship, peer relationships, and children's academic and behavioral competence. *Children and Youth Services Review*, *116*. https://doi.org/10.1016/j.childyouth.2020.105226

Berquez, A., & Kelman, E. (2018). Methods in stuttering therapy for desensitizing parents of children who stutter. *American Journal of Speech-Language Pathology*, *27*(3S), 1124–1138. https://doi.org/10.1044/2018_AJSLP-ODC11-17-0183

Boyle, M. P., Dioguardi, L., & Pate, J. E. (2016). A comparison of three strategies for reducing the public stigma associated with stuttering. *Journal of Fluency Disorders*, *50*, 44–58. https://pubmed.ncbi.nlm.nih.gov/27865229/

Byrd, C. T., Gkalitsiou, Z., Werle, D., & Coalson, G. A. (2018). Exploring the Effectiveness of an Intensive Treatment Program for School-Age Children Who Stutter, Camp DreamSpeak. Live.: A Follow-up Study. *Seminars in Speech and Language*, *39*(5), 458–467. https://doi.org/10.1055/s-0038-1670669

Connery, A., Galvin, R., & McCurtin, A. (2021). Effectiveness of nonpharmacological stuttering interventions on communication and psychosocial functioning in adults: A systematic review and meta-analysis of randomized controlled trials. *Journal of Evidence-Based Medicine*, *14*(1), 17–26. https://doi.org/10.1111/jebm.12408

Craig, F., Crippa, A., Ruggiero, M., Rizzato, V., Russo, L., Fanizza, I., & Trabacca, A. (2021). Characterization of Autism Spectrum Disorder (ASD) subtypes based on the relationship between motor skills and social communication abilities. *Human Movement Science*, *77*. https://doi.org/10.1016/j.humov.2021.102802

El-Qadi, K. (2016). The effectiveness of a cognitive-behavioral guidance counseling program to improve social competence skills in children with stuttering who are victims of peer bullying. *Egyptian Journal of Psychological Studies*, *26*(91), 125–205. https://doi.org/https://search.mandumah.com/Record/1010636

Erickson, S., & Block, S. (2013). The social and communication impact of stuttering on adolescents and their families. *Journal of Fluency Disorders*, *38*(4), 311–324. https://doi.org/10.1016/j.jfludis.2013.09.003

Gee, J. P. (2001). Reading as Situated Language: A Sociocognitive Perspective. *Journal of Adolescent & Adult Literacy*, *44*(8), 714–725. https://doi.org/10.1598/jaal.44.8.3

Goel M., & Aggarwal P. (2012). A comparative study of self confidence of single child and child with sibling. *International Journal of Research in Social Sciences*, *2*(3), 89. Google Scholar

Kuball, Y. E., & Peck, S. (1997). The Effect of Whole Language Instruction on the Writing Development of Spanish-Speaking and English-Speaking Kindergartners. *Bilingual Research Journal*, *21*(2–3), 213–231. https://doi.org/10.1080/15235882.1997.10668661

Langevin, M., Packman, A., & Onslow, M. (2010). Parent perceptions of the impact of stuttering on their preschoolers and themselves. *Journal of Communication Disorders*, *43*(5), 407–423. https://doi.org/10.1016/j.jcomdis.2010.05.003

Law, J., Reilly, S., & Snow, P. C. (2013). Child speech, language and communication need re-examined in a public health context: A new direction for the speech and language therapy profession. *International Journal of Language and Communication Disorders*, *48*(5), 486–496. https://doi.org/10.1111/1460-6984.12027

Luthans, F., Avey, J. B., & Patera, J. L. (2008). Experimental analysis of a web-based training intervention to develop positive psychological capital. *Academy of Management Learning and Education*, *7*(2), 209–221. https://doi.org/10.5465/AMLE.2008.32712618

Mulcahy, K., Hennessey, N., Beilby, J., & Byrnes, M. (2008). Social anxiety and the severity and typography of stuttering in adolescents. *Journal of Fluency Disorders*, *33*(4), 306–319. https://doi.org/10.1016/j.jfludis.2008.12.002

Murphy, W. P., Yaruss, J. S., & Quesal, R. W. (2007). Enhancing treatment for school-age children who stutter. II. Reducing bullying through role-playing and self-disclosure. *Journal of Fluency Disorders*, *32*(2), 139–162. https://doi.org/10.1016/j.jfludis.2007.02.001

Nang, C., Hersh, D., Milton, K., & Lau, S. R. (2018). The impact of stuttering on development of self-identity, relationships, and quality of life in women who stutter. *American Journal of Speech-Language Pathology*, *27*(3S), 1244–1258. https://doi.org/10.1044/2018_AJSLP-ODC11-17-0201

Nabil Ali Shawash, H., & Al-Saeed Jabril, M. (2020). Fa'liyat barnamaj irshadi qaim 'ala ba'di faniyat 'ilm al-nafs al-ijtima'i li khifd al-qalaq al-ijtimai linda talamiz al-marhalat al-ibtidaiyah al-matlathamayn. *Majallat bahuth al-tarbiyah al-naw'iyah*, 2020 (59), 377–397. https://doi.org/10.21608/mbse.2020.130270

Nousia, A., Martzoukou, M., & Siafaka, V. (2022). The role of self-perceived academic competence in children with childhood-onset fluency disorder. *Child Language Teaching and Therapy*, *38*(3), 303–319. https://doi.org/10.1177/02656590221097328

Obiweluozo, P. E., Ede, M. O., Onwurah, C. N., Uzodinma, U. E., Dike, I. C., Ejiofor, J. N., & Tusconi, M. (2021). Impact of cognitive behavioural play therapy on social anxiety among school children with stuttering deficit: A cluster randomised trial with three months follow-up. *Medicine (United States)*, *100*(19), E24350. https://doi.org/10.1097/MD.0000000000024350

Park, S. Y., Kim, S. M., Roh, S., Soh, M. A., Lee, S. H., Kim, H., Lee, Y. S., & Han, D. H. (2016). The effects of a virtual reality treatment program for online gaming addiction. *Computer Methods and Programs in Biomedicine*, *129*, 99–108. https://doi.org/10.1016/j.cmpb.2016.01.015

Rani, R. K., Sugiharto, D. Y. P., & Sugiyo, S. (2022). Keefektifan Konseling Kelompok Cognitive Behavioral Therapy (CBT) dengan Teknik Cognitive Restructuring untuk Meningkatkan Self-Esteem pada Siswa. *Bulletin of Counseling and Psychotherapy*, *4*(1), 44–48. https://doi.org/10.51214/bocp.v4i1.155

Scott, Y, J., Coleman, C. E., & Quesal, R. W. (2012). Stuttering in school-age children: A comprehensive approach to treatment. *Language, Speech, and Hearing Services in Schools*, *43*(4), 536–548. https://doi.org/10.1044/0161-1461(2012/11-0044

Umadevi, V. M., & Sukumaran, P. S. (2012). Functional social skills of adults with intellectual disability. *Asia Pacific Disability Rehabilitation Journal*, *23*(2), 72–80. https://doi.org/10.5463/DCID.v23i2.76

Yates, C. M., Hudock, D., Astramovich, R., & Hill, J. (2018). Helping Students Who Stutter: Interprofessional Collaboration Between Speech-Language Pathologists and School Counselors. *Professional School Counseling*, *22*(1), 2156759X1984450. https://doi.org/10.1177/2156759x19844506