

Original Article

Artigo Original

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Stuttering at school: the effect of a teacher training program on stuttering

Gagueira na escola: efeito de um programa de formação docente em gagueira

ABSTRACT

Purpose: Verify the knowledge of teachers from public and private schools about stuttering and attest the effectiveness of the Teacher Training Program on Stuttering in the expansion of this knowledge. **Methods:** The study sample comprised 137 early-childhood teachers. Initially, the teachers responded to a questionnaire on stuttering. After that, 75 teachers attended a 4-hour Teacher Training Program on Stuttering. One month later, the teachers responded to the same questionnaire again. **Results:** The following points were observed after the training program: increased percentage of teachers who consider as low the prevalence of stuttering in the population; beginning of reports stating that stuttering is more frequent in males; increased number of teachers who consider stuttering hereditary; decreased incidence of teachers who believe stuttering is psychological; prevalence of those who believe stuttering is a consequence of multiple causes; decreased rate of teachers who believe stuttering is emotional; a better understanding of how educators should behave to help stutterers. **Conclusion:** Before the course, the teachers had some knowledge regarding stuttering, but it was insufficient to differentiate from other language disorders. The Program expanded their knowledge on stuttering. However, it proved to be more effective with respect to the characteristics of stuttering than to the attitudes of the teachers.

RESUMO

Objetivo: verificar o que docentes de escolas públicas e privadas sabem sobre gagueira, bem como verificar a eficácia do Programa de Formação Docente em Gagueira na ampliação desses conhecimentos. **Métodos:** participaram do estudo 137 docentes da educação infantil. Inicialmente os docentes responderam a um questionário sobre gagueira. Em seguida, 75 docentes participaram do Programa de Formação Docente em Gagueira com duração de quatro horas. Um mês após participação no programa, os docentes responderam novamente ao questionário. **Resultados:** depois da formação, notou-se um aumento no percentual daqueles que consideram baixa a prevalência de pessoas que gaguejam na população. Os entrevistados passaram a relatar que a gagueira é mais frequente no gênero masculino. Houve aumento daqueles que consideram a gagueira hereditária. Diminuiu a incidência de educadores que acreditavam que a gagueira é psicológica. A maioria dos entrevistados passou a acreditar na multicausalidade da gagueira. Diminuiu o índice de educadores que afirmavam que a gagueira é emocional. Houve melhor entendimento de algumas atitudes que os educadores podem ter na tentativa de ajudar uma pessoa que gagueja. **Conclusão:** os educadores possuíam algum conhecimento sobre gagueira, mas insuficiente para diferenciá-la dos demais distúrbios de linguagem. O programa ampliou os conhecimentos em relação à gagueira. Entretanto, mostrou-se mais efetivo para as características da gagueira do que para as atitudes dos educadores.

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INTRODUCTION

Stuttering is a fluency disorder characterized by involuntary disruptions of the flow of speech, hindering the production of continuous, smooth and effortless speech⁽¹⁾.

Stuttering can be classified into three subgroups: neurogenic, psychogenic and idiopathic or development. The first is derived from brain damage vascular or traumatic origin, and the second arises from the occurrence of an identifiable event or psychological is associated with psychiatric conditions⁽¹⁾. Stuttering of development is defined as the result of a dysfunction of the central nervous system with a genetic basis, which appears in the period of acquisition and development of language, between 18 months and seven years of age⁽¹⁾. This subtype is found in 80% of cases are diagnosed that stuttering in childhood, with 20% of these become chronic⁽¹⁾.

The evolution of developmental stuttering causes serious consequences in the life of a child, hampering their communication and may cause psychological impacts⁽¹⁾, generate negative emotions, shyness, fear related to speech and anxiety. Thus, the child is more exposed to errors of judgment and thus to improper attitudes of their teachers before his/her speech difficulty⁽²⁾.

The attitudes that teachers have on a student who stutter are mostly contradictory, i.e., sometimes they seem to assist the child with stuttering in accordance with the recommendations in the literature, and now, while well intentioned, are used inadequate attitudes, and eventually confirm stuttering in the child⁽³⁾.

Thus, educators play an important role in the educational development of children who stutter, their attitudes can significantly affect the performance of students in the classroom, as well as their progression⁽⁴⁾. Therefore, the participation of the educational audiologist emerges from this context. Central to the guidance of school professionals as regards the development of strategies that encourage the communication skills of the students and the early identification of developmental disorders; in this case, stuttering^(5,6).

In this sense, teachers' education about stuttering is fundamental to improving the adaptation of students with stuttering in the school environment. We didn't find any specific program for the training of teachers of early childhood education in stuttering in the consulted literature.

Thus, this study aimed to determine which teachers from public and private schools know about stuttering, as regards the characteristics of this disorder fluency and attitudes that must be taken in relation to students who stutter. Moreover, we aimed to verify the effectiveness of the Teacher Training Program for Stuttering in expanding the knowledge of educators about stuttering.

METHODS

This study was approved by the Research Ethics Committee of the Institution under number CAAE-14813513.5.0000.5149.

The study included 137 teachers of both genders, aged 18-60 years who ministered classes in public and private preschools.

The study included educators who signed the Consent Agreement and Clarified who responded to the questionnaire Teacher Perception on Child Stuttering - PDGI, adapted from Van Borsel⁽⁷⁾. We excluded teachers who did not respond to the questionnaire in full.

Teachers were invited to participate by invitation letters sent to schools. Those who agreed to participate responded to the PGDI in the first phase of the study, to check on the knowledge of teachers of early childhood education about stuttering. Then the teachers receive information about the Teachers Training on Stuttering Stuttering (PFDG) and were invited to attend the meetings, which characterized the second phase of the study, a total of 75 participants.

PFDG consists of two modules, with total workload of 4 hours. The program had an average duration of two meetings, and the activities were carried out according to the availability of each institution. The PFDG use Active Learning Methodologies in meetings and drew the following strategies: dialogued exposition, questioning, dynamic and workshops. Initially the questioning was conducted from videos with testimonials from people who stutter telling about the difficulties presented during the term. Then dialogued exhibition was held, with theoretical basis of presentation on stuttering addressing the following contents: definition, etiology, development, epidemiology, diagnosis, intervention, attitudes that undermine stuttering and attitudes that promote fluency. The next module, a dynamic on myths and truths related to stuttering was performed; the workshop on attitudes that hinders and promotes fluency; and workshop on stuttering situations in the classroom. The aid material on the analyzed content was distributed. Finally, to verify the effectiveness of the program, educators responded to the same initial questionnaire one month after participation in the program.

The second phase excluded teachers who lack one of the meetings, or who did not answer the questionnaire again PDGI after participation in training.

Data were tabulated in a database developed in Excel[®] and statistically analyzed using the McNemar test (SPSS 18.0) in the case of data collected in a paired form (pre and post-PFDG). Pearson chi-square was used to compare proportions according to the type of school (public or private) of the various characteristics evaluated. In both tests we used 5% significance level. Statistically significant values are in bold.

RESULTS

Table 1 and Figures 1 to 4 have prior knowledge of the educators on the epidemiological characteristics of stuttering causes (Figure 1) speech characteristics of people who stutter (Figure 2) and their views on positive attitudes (Figure 3) and negative (Figure 4) that people can have in an attempt to help a person who stutters to speak better. In general it is observed that, before participating in the program, educators already had some knowledge about stuttering, with problems mainly regarding the cause, prevalence, emotional characteristics and attitudes that favor fluency.

Table 1. Knowledge of early childhood education teachers on general characteristics of stuttering

	f	%
Have you seen or do you know anyone that stutters? (Yes)	133	97.1
Do you know anyone that stutters among your acquaintances? (Yes)	111	81.0
How many people in 100 stutter?		
1-5	41	33.3
6-10	32	26.0
11-20	21	17.1
21-30	9	7.3
31-40	6	4.9
41-50	5	4.1
51-60	2	1.6
61-70	2	1.6
71-80	3	2.4
91-100	2	1.6
What is the starting age for stuttering?		
1-4	103	79.8
5-10	26	20.2
If you had a 4 years old child that stutter, what would you do?		
Would wait	5	3.7
Consult the family doctor	3	2.2
Consult a speech therapist	126	93.3
Other	1	0.7
In your opinion, the prevalence of stuttering is higher		
During childhood	88	65.2
During adolescence	20	14.8
During adulthood	27	20.0
Stuttering		
Is more common in men than women	62	45.3
Is less common in men than women	1	0.7
Happens equally in men and women	74	54.0
Stuttering		
Is more frequent in left-handed than in right-handed people	11	8.1
Is less frequent in left-handed than in right-handed people	8	5.9
Happens equally in left-handed than in right-handed people	116	85.9
Stuttering occurs		
Only in Caucasians	132	97.8
Also in other races	3	2.2
In your opinion, the stutterer has an intelligence level		
Higher than normal speakers	6	4.4
Lower than normal speakers	7	5.2
Equal to normal speakers	122	90.4
Consider more severe		
Use glasses	9	7.3
Need for hearing aid	72	58.1
Stuttering	43	34.7
Consider less severe		
Use glasses	87	73.7
Need for hearing aid	3	2.5
Stuttering	28	23.7
Can stuttering be treated?	74	97.4

In addition to the information contained in Figure 1, the closed questions, 100 (73%) individuals considered that factors such as stress, fear, anxiety, insecurity, shyness and shame cause stuttering. Similarly, 13 (9.6%) believe that stuttering is contagious.

With regard to the basic characteristics of stuttering, besides the above in Figure 2, 55 (40.1%) of teachers believed that stutterers are always shy, nervous, introverted and frightened.

Table 2 shows the results of the pre PDI questionnaire and post-PFDG. Because of the number of questions in the

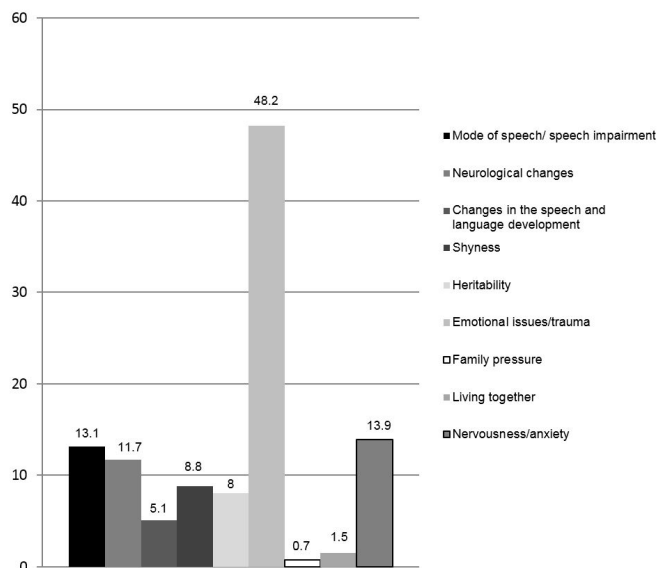


Figure 1. Teachers answers to the open question on causes of stuttering

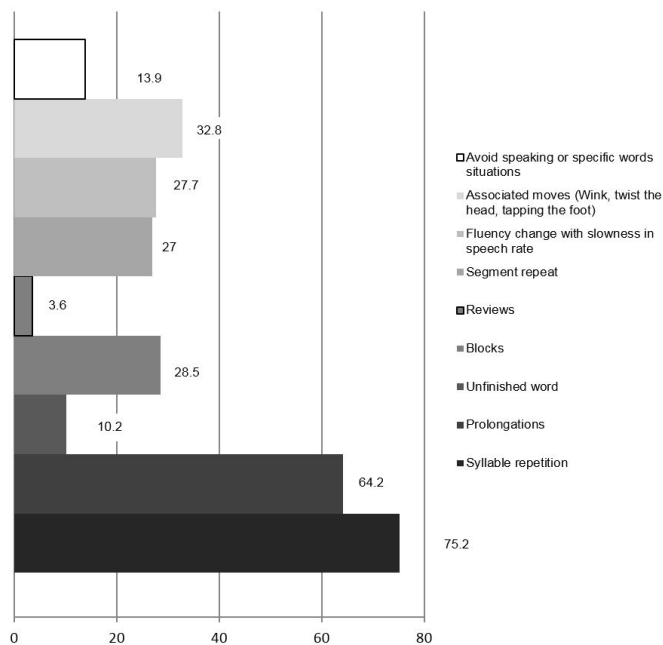


Figure 2. Opinion of early childhood education teachers on general characteristics of stuttering

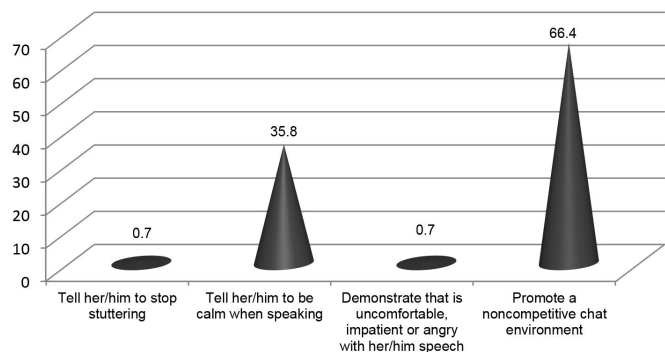


Figure 3. Early childhood education teachers' opinion on wrong attitudes used in an attempt to help a person who stutters to speak better

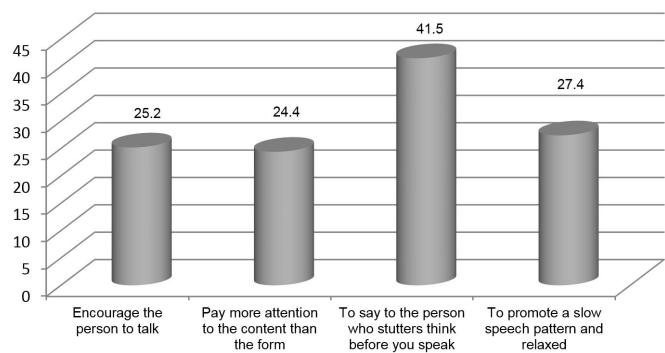


Figure 4. Early childhood education teachers' opinion on attitudes that help a person who stutters to speak better

questionnaire, it was decided to present only the results of comparisons with statistically significant differences. We observed change in the teachers' knowledge after participation in the program for most of the investigated items, especially as the general characteristics of the disorder.

The results of the comparison between public and private school teachers in the knowledge about stuttering are presented in Table 3. Just as in Table 2, we decided to present only comparisons with statistically significant differences. According to the table, teachers from private schools tend to have greater knowledge about stuttering in two moments of the questionnaires.

DISCUSSION

This study aimed to describe the knowledge of public and private school teachers about stuttering and the effect of a training program for stuttering in the expansion of such knowledge. The work provide information about stuttering for about 140 teachers of early childhood education and if we consider that on average the teachers working two shifts, morning and afternoon, serving about 40 children per year, many children have been and will benefit.

As description of the results, the vast majority of educators had seen or knew someone who stutters, which goes against the available literature⁽⁷⁻¹¹⁾, demonstrating that stuttering is a

Table 2. Comparison of teachers knowledge on stuttering before and after participating of the Speech Therapy Program for Teachers Training on Stuttering

	Before the program		After the program		P-value
	f	%	f	%	
How many people in 100 stutter?					
1-5	17	27.0	34	54.0	0.012
6-10	19	30.2	15	23.8	
11-20	11	17.5	7	11.1	
21-30	2	3.2	2	3.2	
31 or more	14	2.2	5	7.9	
Stuttering					
Is more common in men than women	27	36.0	36	48.0	0.013
Is less common in men than women	1	1.3	8	10.7	
Happens equally in men and women	47	62.7	31	41.3	
Stuttering occurs					
Only in Caucasians	66	88.0	74	98.7	0.021
Also in other races	9	12.0	1	1.3	
What causes stuttering?					
Emotional issues/trauma	36	48.0	16	21.3	0.002
Heritability	7	9.3	35	46.7	<0.001
Family pressure	1	1.3	3	4.0	0.625
Nervousness/anxiety	13	17.3	3	4.0	0.021
Can stuttering be treated?	71	94.7	75	100.0	-
In your opinion, stuttering is hereditary? (Yes)	17	22.7	49	65.3	<0.001
Stuttering can be triggered by factors:					
Psychological	36	48.6	12	16.2	<0.001
Physical, Psychological and Environmental	37	50.0	61	82.4	<0.001
Do stress, fear, anxiety, insecurity, shyness and shame cause stuttering?	55	73.3	35	46.7	0.002
Lead to an erroneous attitude in the attempt to help a person who stutters to speak better: Tell the person to think before speaking	33	45.1	50	68.5	0.002
Attitudes to help a person who stutters to speak better:					
Tell him/her to be calm when speaking	28	37.3	6	8.0	<0.001
Promote a noncompetitive conversation	48	64.0	70	93.3	<0.001

Caption: PFDG= Speech Therapy Program for Teachers Training on Stuttering; McNemar test; p<0.05

Table 3. Comparison of teachers from public and private school knowledge on stuttering before and after participating of the Speech Therapy Program for Teachers Training on Stuttering

	Before the program				P-value	After the program				P-value
	Public		Private			Public		Private		
	f	%	f	%		f	%	f	%	
How many people in 100 stutter?										
1-5	15	24.6	26	41.9		29	52.7	14	60.9	
6-10	13	21.3	19	30.6		11	20.0	6	26.1	
11-20	12	19.7	9	14.5	0.033	7	12.7	1	4.3	0.415
21-30	6	9.8	3	4.8		5	9.1	0	0.0	
31 or more	15	24.6	5	8.1		3	5.5	2	8.7	
Stuttering										
Is more common in men than women	25	35.2	37	56.1		24	42.1	13	56.6	
Is less common in men than women	1	1.4	0	0.0	0.037	3	5.3	5	21.7	0.013
Happens equally in men and women	45	63.4	29	43.9		30	52.6	5	21.7	
Causes of stuttering: Heritability	8	11.3	3	4.5	0.211	36	63.2	6	26.1	0.003
In your opinion, stuttering is hereditary? (Yes)	18	25.4	13	19.7	0.541	30	52.6	23	100	<0.001
People who stutter are always shy, nervous, introverted and frightened? (Yes)	38	53.5	17	25.8	0.001	32	56.1	10	43.5	0.218
Stuttering is basically characterized by:										
Syllable repetition	48	67.6	55	83.3	0.047	37	64.9	20	87.0	0.059
Prolongations	37	52.1	51	77.3	0.002	32	56.1	20	87.0	0.010
Unfinished word	8	11.3	6	9.1	0.781	7	12.3	11	47.8	0.002
Reviews	3	4.2	2	3.0	1.000	2	3.5	6	26.1	0.006
Avoid speaking or specific words situations	5	7.0	14	21.2	0.024	12	21.1	11	47.8	0.028
Associated moves	15	21.1	30	45.5	0.003	36	63.2	14	60.9	1.000
Stuttering can be triggered by physical factors	1	1.4	14	21.2	<0.001	1	1.8	2	8.7	0.197
Stress, fear, anxiety, insecurity, shyness and shame cause stuttering	46	64.8	54	81.8	0.034	24	42.1	12	52.2	0.283

Caption: PFDG= Speech Therapy Program for Teachers Training on Stuttering; Pearson Qui-square test; $p < 0.05$

known issue, though educators do not know how to deal with these individuals⁽¹⁰⁾.

The data indicated that most respondents believed to be a high prevalence of the disorder in the general population. This same finding was shown in previous studies⁽⁷⁻¹¹⁾. The discrepancy in the number of people who stutter in the population may indicate a misconception on the subject stuttering. From this high prevalence, it can be assumed that stuttering may be being confused or associated with other speech disorders and / or common disfluencies as described in the literature⁽⁶⁾.

The results showed that, for most educators, the age of onset of stuttering in childhood, a fact that goes against studies with teachers^(11,12) and studies in the general population⁽⁷⁻⁹⁾. According to the literature of the area, stuttering often appears in the language acquisition period, especially between 18 months and 7 years⁽¹⁾. The finding may be related to the fact that respondents were teachers of early childhood education, associating the fact to their professional experiences.

Among the surveyed educators, the majority believe that stuttering can be treated, which corroborates the literature^(7-9,11,13). As for the professional responsible for the treatment, although educators believe that stuttering is emotional cause, most of

them consult an audiologist if you had a child with stuttering. This result is consistent with the literature, which describes the audiologist as the most sought professional to evaluate children with stuttering^(4,7-11).

Regarding the influence of gender on the prevalence of stuttering, although the literature pointing out that stuttering is more prevalent in males⁽¹³⁻¹⁵⁾, teachers interviewed believe that or have the same prevalence (54%) or that it is more prevalent in males (45.3%). A similar result was found in interviews with the general population⁽⁷⁻⁹⁾.

Respondents believe that stuttering has the same frequency in left-handed and right-handed and that the level of intelligence of people who stutter is equal to the fluent speakers, which corroborates the literature⁽⁷⁻⁹⁾. This may indicate a decrease of prejudice as to the degree of intelligence of individuals with stuttering.

As the described results, it is observed that most people consider the disorder characteristic only from people of Caucasian origin, which is not in accordance with the literature. In studies conducted in the general population, the majority of respondents said that stuttering can occur in any race⁽⁷⁻⁹⁾. The findings reaffirm the idea of lack of knowledge about the stuttering.

When asked about the severity of stuttering, compared to having to wear glasses or hearing aid, stuttering occupied the second position. This result is opposed to the one found in the literature, which shows that the majority of respondents believe that stuttering is the most serious⁽⁷⁻⁹⁾. This fact may be related to the issue of the negative image that the speaker has to use objects like glasses and additive system and / or the experiences of these individuals when exposed to three situations.

According to the findings on the etiology, the results indicate that respondents educators believe that the cause of stuttering is traumatic or emotional; that people who stutter are always shy, nervous, introverted and frightened; and that factors such as stress, fear, anxiety, insecurity, shyness and shame cause stuttering. These findings were found in previous studies^(4,7-11,16). This may be related to erroneous beliefs and attitudes of the past and the lack of knowledge of these individuals. The literature suggests that teachers tend to associate the difficulty of communicating their students with low skills⁽¹⁷⁾. This perception of lower competence can then be perceived by the student, which generates more apprehension and escape at the time of communication⁽¹⁶⁾.

Most respondents believe in heredity as a cause of stuttering, as previous studies⁽⁷⁻⁹⁾. However, when asked a direct question regarding the heritability of stuttering, most educators replied that stuttering is inherited cause. This corroborates information provided by literature, which states that genetic inheritance is a predisposing factor for the occurrence of stuttering breaks^(13, 14) and that the mere existence of psychological problems is not a cause of the disorder. The discrepancy in the responses indicates that educators do not disagree that stuttering has a genetic origin, but believe that emotional factors are more relevant as a cause of stuttering. Another hypothesis is that when educators point out the emotional factors as causes of stuttering, were referring to the triggering of disfluencies factors, since many people report having worse stuttering when get nervous.

As regards the typology of disfluencies, it was observed that the responses found reaffirm the hypothesis of ignorance or misconception on the subject stuttering. The literature shows that stuttering is characterized by repetitions of sounds and syllables, prolongation of sounds, locks, extensive breaks and intrusions into words, which leads to reduction in speech rate and discontinuity of discourse above normal for the age of the speaker⁽¹⁾. The characterization of stuttering is very important for clinical diagnosis⁽¹³⁾. In this sense, it is essential that educators are aware of the characteristics of speech of stuttering children and fluent to properly refer children who need evaluation and speech therapy.

As for the attitudes that hinder the flow, the most appropriate response by teachers was “to say to the person who stutters think before you speak.” But almost a third of speakers believed to be inappropriate “to promote a slow speech pattern and relaxed”, “encourage the person to talk” and “pay more attention to the content than the form.” Regarding attitudes that promote fluency, about 70% of teachers believe that “promote a noncompetitive chat environment” is a positive attitude. Studies with educators and parents of children who stutter showed difficulties on

how to deal with such children^(2,12). Negative attitudes of the caller may interfere in the child’s ability to communicate with stuttering⁽¹³⁾, it is essential to approach this topic in training programs for teachers.

With respect to findings involving public and private schools, in general, the answers provided by teachers from private schools were more suitable in relation to those given by public school teachers. In private schools, educators believe the low prevalence of stuttering in the general population and that the disorder is more common in men than in women. In addition, teachers of these institutions reported more accurately the characteristics of people who stutter. As for the causal factors, a worrying fact is that about 80% of teachers believe that fear, anxiety, insecurity, shyness and shame should be considered causes of the disorder.

The good results of private schools can be justified by the fact that they have the degree of training and opportunities to acquire more knowledge to the public. Moreover, one might think the assumption that speech therapy guidelines have been previously held in private schools. The literature⁽¹⁸⁾ shows that the big difference between public and private schools lies in teacher training and the availability of materials in private schools, which could justify some more appropriate responses to the questionnaire used in this research. However, another study⁽¹¹⁾ states that there is no difference between teachers of public and private schools with regard to knowledge about stuttering.

When comparing the opinions of educators before and after PFDG, noted an increase in the percentage of those who consider low prevalence of people who stutter in the population. This is due to greater clarification of what actually would be stuttering, decreasing then the comparison with other speech disorders. This finding is corroborated by another study⁽¹²⁾, where, after conducting an orientation program, teachers were able to detect more easily the communication disorders.

Interviewees started to report that stuttering is more frequent in males, a fact that is proven in the literature⁽¹⁴⁾, it indicates that with increasing age, the relationship between boys and girls can reach 3.5/1.

With regard to race, the increasing the number of respondents who say that stuttering occurs only in Caucasians individuals serves as a warning so that the conduction of the guidelines is improved. It is understood, with the answers provided, children of other races than Caucasians may go unnoticed as the language disorders, and there was thus an overvaluation of disorders in Caucasians or undervaluation in other races. Moreover, it is important to highlight the absolute majority of white children in the transmitted documentary videos, which may have affected the results, there is also failure clarity of the information presented. It is noteworthy that participants can insist on believing for not having contact with people of other races with stuttering.

Regarding the cause of stuttering, the number of educators who gave the heredity to stuttering. These data demonstrate

an adequate and satisfactory approach to the causes of speech disorders.

The number of individuals who believe only in the psychological factor as a trigger for stuttering, as well as those who consider stress, fear, anxiety, insecurity, shyness and shame as the cause of stuttering decreased. In contrast to this, it increased the sum of those who believe in stuttering as a result of the interaction between the physical, psychological and environmental factors. This result confirms the adequacy of the proposed regarding the causes of stuttering, since it demonstrates the understanding of the multiple causes of speech disorders, as pointed out in the literature^(14,19).

Most respondents consider as inadequate attitude ask the person who stutters think before speaking. Likewise, there was a considerable reduction in the number of participants who consider appropriate to request calm the person who stutters during speech. In addition, the promotion of a non-competitive environment conversation was considered an attitude help during speech by almost all respondents. These results are highly significant, given that the promotion of a non-competitive environment conversational configures itself as the main strategy that teachers in the classroom to help children who stutter. It is necessary to emphasize the attitudes so that teachers feel able to deal with individuals with stuttering, thus improving the student-educator⁽¹⁶⁾. Literature^(20,21) shows that teachers are important allies to help your students who stutter to deal with the social challenges related to negative impressions, social distancing and *bullying*⁽²²⁾. However the lack of knowledge can hinder this relationship, therefore, it is observed that the program was effective in relation to etiology and characteristics of stuttering and very effective for the improvement of attitudes of educators. This result was also found in another state⁽¹¹⁾ teacher training on stuttering.

However, health promotion programs in schools are of great importance to the school environment^(6,11,23), it provides knowledge to professionals who spend most of the time in contact with children^(11,23). This, in turn, can lead to behaviors and attitudes that benefit their students, minimizing the difficulties and decreasing the chance of stuttering become persistent⁽¹¹⁾.

CONCLUSION

It can be concluded that educators of early childhood education have some knowledge about stuttering, but not sufficient for differentiation from other language disorders. With regard to the type of school, private school educators have a better knowledge about stuttering in relation to public school educators.

The training program provided expand knowledge regarding stuttering, which can contribute to early detection and better adaptation of children to school. However, the program was more effective in the etiology and stuttering characteristics than to the attitudes of educators in relation to the difficulties of stuttering children. Future studies should consider an increase in the program duration and provide time for teachers to apply

the issues discussed in their practice of the classroom, favoring the learning of attitudes that favor fluency.

Considering the wide acceptance for the development of the program and the positive results achieved, emphasizes the importance of this study allowed us to analyze the immediate change in knowledge after the training program.

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Author contributions

LKS, TMM, JKBCR, MAS and FGC were responsible for the data collection and tabulation and preparation of the manuscript; VOM-R was responsible for the projects and study design and overall orientation of the stages of implementation and preparation of the manuscript.