



## **Intervention in Social Skills: The Behavior of Children from the Perspective of Parents and Teachers**

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### **Authors' contributions**

*This work was carried out in collaboration between both authors. Author ATBS designed the study, wrote the protocol and supervised the work. Author APF carried out all laboratories work. Author ATBS performed the statistical analysis. Authors APF and ATBS managed the analyses of the study. Author APF wrote the first draft of the manuscript. Authors APF and ATBS managed the literature searches and edited the manuscript. Both authors read and approved the final manuscript.*

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### **ABSTRACT**

Studies have highlighted the difficulty of conducting interventions with parents when what motivates them to seek therapy is a behavioral problem of a child. As a way of preventing and treating this complaint an intervention procedure was prepared and applied with school children, with the aim of promoting better social interactions between the children and their peers. The aim of the study was to verify whether the social skills learned by the children during the intervention were generalized for the school and family environments. A total of 7 children participated in the study, who were enrolled in the second year of elementary school and presented behavioral problems at a clinical level in the school and family environments. To evaluate the results the following instruments were used: CBCL, TRF, SSRQ-parents, SSRQ-teachers, RE-SHE-P, and an observation protocol. The intervention procedure had a duration of 8 sessions in which the teaching of social skills was

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performed, the themes of which were: To greet, to initiate conversations and civility; to thank, to say good things and express opinions; to make friends, to help, play and share things; to wait their turn and control themselves; to make, answer requests and to thank; to name feelings and empathy; to compliment, kiss and hug; to admit mistakes, apologize and listen to criticism. The results indicated that, based on the reports of the parents and teachers, there were improvements in the behavior of the children, although not to the point of leaving the clinical level, however, from the observation protocol the parents and children presented a high frequency of skilled behaviors and a low frequency of unskilled behaviors.

*Keywords: Social skills; parental practices; generalization.*

## 1. INTRODUCTION

In the area of Developmental Psychology works can be identified [1-8] that are being conducted in order to analyze the influence of the behaviors of mothers and fathers on the behavior of their children. As the family provides the primary and most important environment for human development, the relationships between the family members have a profound influence on the behavior of the children. When the mothers and fathers act as agents of socialization for the children, they are preparing their children to behave in society [9].

Thus, intervention with caregivers has increased over the years due to the importance of their participation when the aim is to change the behavior of the children in their care. In the family context, it is essential to work with the mothers and fathers, mainly because it is believed that childhood behavior is a result of the behavioral history of the child in the environment in which he/she lives and that it is maintained by environmental-family contingencies [10]. Since the behaviors of parents and children influence each other, despite having their own learning histories, ontogeny and cultures, from the social interaction of both of them they behave so that each generates stimuli and responses that evoke the behavior of the other. Thus, these interactions can be considered to be intertwined contingencies, as the responses of parents are, at the same time, the reason for and consequence of the responses of the children and vice versa [11].

These behaviors presented by the parents in the interaction with the children are classified by authors of the area with different names such as: parenting practices [12], educational social skills [13], parental educational social skills [14], and development facilitating or non-facilitating educational practices [15]. [16] state that, due to the different life contingencies parents become

well prepared or not to educate their children in the best way. [17] compared the behavior of antisocial children and their parents and found that, regardless of the age, the more severe behavioral problems were presented by the children whose parents did not present monitoring behaviors, i.e., these behaviors were omitted and they presented inconsistent disciplinary behaviors, sometimes punishing or sometimes reinforcing inappropriate behavior, reinforcing the model of coercion presented by the authors [18].

Parents can therefore educate their children using parental educational social skills - ESS-P- [19] that allow the child to develop various skills such as: gaining independence, confidence and responsibility [20]. [3] compared the parenting practices and behavior of two groups of children (clinical and nonclinical for behavioral problems) and the results indicated that the behaviors that differentiated the clinical and non-clinical groups were primarily those related to positive educational practices and child social skills.

From a literature review of the area, [21] reviewed all the randomized clinical trials that evaluated interpersonal training programs with intervention to reduce the behavioral problems, such as aggressive behavior. The results indicated that isolated intervention programs have weak empirical support and that an evidence-based system is the care alternative. This system includes training of the parents, interventions with teachers, and family therapy. Skills training could perform an important supportive role, as it holds the greatest promise for reducing the prevalence of aggressive and delinquent behaviors in communities.

Thus, the Child Social Skills not only contribute to a better adaptation of the children in the school environment, but also prevent the onset of aggressive behavior [22,23] and learning difficulties [24,25]. Interventions in social skills

have resulted in significant reductions of behavioral problems and problems at home and at school [26]; behavioral problems associated with disorders identified by the DSM-IV [27] and problem solving difficulties [28]. However, the studies showed that for there to be a generalization of the skilled behavior learned, guidance for the parents on how to promote the maintenance of the new repertoire of their children needs to be provided [23,26,27].

The term generalization is used in situations where a response is issued in the presence of new stimuli that share a physical property (similarity) with the discriminative stimulus, in the presence of a response which has previously been reinforced, for example, when given a bottle of soft drink (discriminative stimulus) if the cap is rotated (behavior) access to the liquid occurs (positive reinforcement), then faced with a new challenge with similar physical properties, such as other bottles or containers with caps, the individual rotates the cap to access the contents of the container [29].

Studies [30,31] have revealed that positive parenting practices are related to child social skills and to the reduction of behavioral problems of the children. Despite knowing the importance of studies that teach parental educational social skills there is great difficulty in adherence for these participants, due to various factors, such as severity of the symptoms - the more serious the problems of a child, the less likely a family is to stay in treatment; maternal depression and marital problems-the level of parental psychopathology and stress are inversely related to therapeutic change; long interventions-the longer the intervention, the greater the chances of the family abandoning the treatment; single-parent families, where only one of the caregivers must assume all the responsibilities of the home, work and children there is less chance of them adhering to the treatment; treatment involving the parents – because they claim that the behavioral problems are presented by the children and it is therefore those who should be treated [32].

In this sense, [33] stated that researchers have developed an impressive array of evidence-based treatments for a wide range of behavioral problems of children and adolescents. Most of these evidence-based treatments involve skills and require that the children and parents actively participate in the sessions and do homework (between sessions), however, the lack of attendance and adherence remain huge problems in parent and child therapy. [34]

emphasize that when developing an intervention for the treatment of behavioral problems in children including the participation of the parents, to merely perform an effective procedure is not enough to ensure the participation of the parents. Some of the suggestions for possible better adherence of the participants are brief treatments, focused on the children, with therapists readily available, to give attention to the family problems, to provide incentives related to attendance, self-directed and videos based interventions, and decreased time on the waiting list [32]. [23] conducted a research's review interventions procedures that sought to teach social skills to preschool children on in the UK and found that most research does not feature high reliability, since it does not assess changes the point of view of children, do not point reducing behavioral problems and has many intervention sessions.

Developmental Psychology highlights the importance of a skilled repertoire during childhood for the prevention of behavioral problems. In Brazil, intervention studies with children focus on a specific group of skills (problem solving, empathy), have a long duration, and involve the participation of parents and teachers. Due to the great difficulty of performing the group with the participation of the parents and in order to promote the prevention of behavioral problems in school children, an intervention procedure that sought to teach social skills to children with behavioral problems was developed, aiming to verify whether there was generalization for the school and family environments of the skills learned during the intervention and therefore to promote better social interactions of the participants.

For this, a survey was carried out of studies that highlight the main differences between the behaviors shown by clinical and non-clinical children regarding behavioral problems and parenting practices [6,8,35-38]. The results showed that even the children in the clinical group presented some social skills and that their parents were able to reinforce them, which would increase the probability that the generalization of these behaviors to the family environment occurs [8].

When teaching social skills it is expected that the family environment is able to reinforce them, reducing the probability of the emission of behavioral problems and thus causing the skilled behaviors to be installed in the repertoire of the children, causing them to leave the clinical level

of behavioral problems. This text aims to verify whether the children that learned social skills during the intervention were able to generalize the learned behaviors for the school and/or family environments, without any instructions on parenting practices being provided to the parents.

## **2. METHODS**

### **2.1 Participants**

The participants of this study were seven children attending the second year of elementary school of a public school in a city in São Paulo State, as well as their guardians (parents, grandparents) and class teachers. The researchers choose the second year of elementary school because they are a grade where children still in the transition to school entry. In Brazil there was an educational reform, the first year of elementary school became the last year of pre-school and the second year of elementary school became the first year of elementary school. Studies raised about behavior problems in childhood show that children of all phases of school period present behavior problems, there isn't a school grade in which they present themselves more often, however, over years the behaviors become more usual in the children's repertoires. [6,8,35-38]. To participate in the study the children needed to be diagnosed as clinical for internalizing and externalizing behavioral problems and the totals of the TRF and the CBCL instruments (Childhood and Adolescence Behavior Inventories, for preschool children and schoolchildren from 6 to 18 years, for teachers and parents respectively [39], i.e., both the family and the school evaluated the children as having problems on all scales of the instruments. The second year teachers of the schools that participated in the survey indicated that children who had behavior problems in the classroom and answered the TRF and QRSH teachers. Parents were invited to participate in the survey and answered the CBCL, QRSH-parents and RE-HSE-P. All children (10) who were diagnosed were invited to participate in the study. The seven participating children were those who accepted the invitation and participate more than 50% of the intervention sessions. Table 1 presents information regarding the participants.

### **2.2 Study Context**

This work constitutes part of the results of a study entitled "Evaluation of the effectiveness of

a group intervention with students to promote better social interactions". A pilot study was carried out with a group of children who presented the same behavioral problems and were in their first year of elementary school, so that the procedure could be adjusted to the needs of the children. A pilot study was conducted to testing the intervention, favoring adjustments before applying the research population. Children of the pilot group were the first year of elementary school as they approached learning and repertoire of the experimental group who were in the second grade of elementary school.

### **2.3 Ethical Aspects**

The intervention with school children focuses on teaching the social skills necessary so that the children diagnosed as clinical for behavioral problems in the school and family environments can improve their family relationships in socializing with their peers. Thus, the benefits of the participation in the procedure are that when behaving skillfully the children may be more likely to come in contact with reinforcement contingencies and thus improve their social relationships.

With the risk that no change could occur in the repertoire of the behavioral problem children and therefore they will continue to have difficulty in their social relationships. This study was approved by the research ethics committee. All participants (teachers, parents and children) to be invited to participate in the survey had their doubts clarified and signed the consent form and clear (parents and teachers) and assent term (children), which guarantees the confidentiality and anonymity of thereof. The research was accepted by the Ethics Committee in Research with protocol number 449 906.

### **2.4 Instruments**

To evaluate whether there was generalization of the social skills learned during the intervention procedure the following instruments were applied at four times, baseline, pre-test (four months after the baseline), post-test (after the end of the intervention), and follow-up (one year after the intervention): The CBCL - "Child Behavior Checklist for ages 6-18" [39] classifies the behaviors of children from the responses of the parents into internalizing, externalizing, and total problems, from 113 behavioral situations in the family environment,. Its score ranges from 50 to 100 for each of these categories of behavior, with

scores of 50 to 59 being diagnosed as non-clinical level, 60 to 63 as borderline, and 64 to 100 as clinical. The instrument also evaluates behaviors related to disorders of the DSM-IV,

**Table 1. Demographic data of the intervention participants**

| Part. | Gender | Family aspects   | Behavioral problems   | Person that responded to the instruments |
|-------|--------|--|---|--|
| 1     | F      | Lived with the grandparents, mother, two cousins and aunt  | The child was aggressive, always involved in fights at school. At home the child lied a lot.  | Maternal grandfather                     |
| 2     | M      | In the evaluation phase lived with the mother and her companion, the parents had separated a little less than a year before, during the intervention he was living with his father and at post-test was again living with his mother | In classroom he made a mess, he swore and provoked his colleagues. At home he did not obey and lied a lot to the mother.  | biological mother                        |
| 3     | M      | Lived with the mother and father, however, as the father was a truck driver he was travelling most of the time and far from the child, the paternal grandmother took care of the child while the mother was working                  | Presented difficulty resolving problems, was easily irritated and cried for any reason in the classroom. At home the child was afraid of animals and thieves and stayed close to the mother.                  | biological mother                        |
| 4     | M      | Lived with the parents and two sisters, one a new-born, there was great difficulty for the parents to come to the school to respond to the instruments.  | In the school the child presented a lack of energy to carry out activities, swore and would not become involved with the children in classroom. At home he did not help the parents, screamed and swore a lot | Biological father                        |
| 5     | M      | Lived with the mother, stepfather and one brother. The mother was always available to go to the school, however, said that she did not interact with the child at home.  | Presented aggressive behavior at school with classmates and teachers. At home disobeyed the mother a lot.   | Biological mother                        |
| 6     | F      | She had been adopted, her biological mother was involved with drugs and lost guardianship of the child. Lived with the adoptive mother and father and two older brothers who did not accept the presence of the child in the house   | Presented difficulties in interactions with the other children in the school, fought and swore for any reason. At home did not even know how to use the bathroom and did not obey the rules.                  | Adoptive mother                          |
| 7     | M      | Lived with the mother, father and one brother.   | Presented difficulty in classroom interactions and aggressive behavior. At home the child talked a lot, fought and got into trouble   | Biological mother                        |

Key: F = female, M = male

such as affective problems, anxiety problems, attention deficit and hyperactivity disorder, challenging problems, and behavioral problems.

The TRF - "Teacher Report Form for ages 6-18", [39] classifies the behaviors of the students from the responses of their teachers into internalizing, externalizing, and total problems, from 113 behavioral situations in the school environment. Its score ranges from 50 to 100 for each of these categories of behavior, with the scores 50 to 59 being diagnosed as non-clinical level, 60-63 as borderline, and 64-100 as clinical. The instrument also evaluates the behaviors related to disorders of the DSM-IV, such as affective problems, anxiety problems, attention deficit and hyperactivity disorder, challenging problems, behavioral problems, and academic performance. These instruments are not validated for Brazil, however, they provide great reliability and are used in various national and international studies. [40] conducted a preliminary study of instrument validation for the population of São Paulo and currently the researchers [41] are conducting a validation study for the entire Brazilian population. [42] stated that the instrument has multicultural validity, since studies conducted in different countries showed high correlation between the CBCL and results of different instruments.

The SSRQ-parents- Socially Skilled Response Questionnaire - parent version, consists of a questionnaire with 18 questions regarding the behavior of the children that can be answered through three alternatives: "Does not apply" (0 points - when the child never presents the behavior), "applies somewhat" (1 point - when the child only rarely presents certain behavior) and "certainly applies" (2 points - when the child often presents certain behavior). Thus the scores range from 0 to 36 points and in this case there was a comparison of the scores before and after the intervention to evaluate the variation in skilled behaviors in the family context [43].

The SSRQ-teachers - Socially Skilled Response Questionnaire - teacher version [19] consists of a questionnaire in which teachers evaluate the social skills presented by the children as "not applicable" (0 points - when the child never presents the behavior), "applies somewhat" (1 point - when the child only rarely presents certain behavior) and "certainly applies" (2 points - when the child often presents certain behavior). The questionnaire has 24 questions in which every day school situations involving the behavior of the child are described, thus, the score ranges

from 0 to 48 points, and in this case there was a comparison of the scores of the behavior of the child before and after the intervention to evaluate differences between the behaviors in the school context.

The RE-HSE-P [44] is an instrument of open questions about everyday situations of parents and children, which seeks to evaluate the behaviors presented by both and the quality of their interactions. The instrument is validated and presents clinical and non-clinical scores for the frequency and diversity of the behaviors: ESS-P (parental-educational social skills) – diversity - 10-14 non-clinical, 8-9 borderline, 0-7 clinical, frequency - 13-20 non-clinical, 11-12 borderline and 0-10 clinical; negative parenting practices – diversity - 5-0 non-clinical, 6 borderline and 7-8 clinical, frequency-0-10 non-clinical, 11 borderline, and 12-22 clinical; child social skills – diversity - 9-16 non-clinical, 7-8 borderline, 0-6 clinical, frequency - 13-20 non-clinical, 11-12 borderline, 0-10 clinical; child problem behaviors – diversity - 0-7 non-clinical, 8 borderline, 9-10 clinical, and frequency - 0-4 non-clinical, 5 borderline, and 6 clinical.

Finally, the parent-child interaction was investigated through a memory game in which the pair were instructed to play the way they would play at home. No rules were provided for the game and the pairs were left free to perform the activity in the way they preferred. The interaction was videotaped so that the tabulation of the behaviors displayed by both participants could be carried out.

After the training of the observers, the observations were performed, where the behaviors presented by the child and the parent were tabulated, during the memory game, for 10 minutes. The tabulation was performed by two observers after obtaining the level of agreement required for the validity of the observation: O1 and O2= 0.91 [45]. For the tabulation, a script was prepared [46] which presented parenting practices, social skills and behavioral problems, which could be displayed during the interaction in the memory game, the table was formulated from the RE-HSE-P instrument. A total of 15 minutes of the interaction were filmed, and the first 3 minutes and the final 2 minutes were discarded. Therefore, the behaviors emitted during the intermediate 10 minutes of the intervention were tabulated. During the tabulation the behaviors were quantified minute to minute, i.e., during the minute the behaviors which appeared were recorded, regardless of frequency or duration.

## 2.5 Intervention

The intervention procedure consisted of 8 sessions, in which the social skills found in the literature to be important for the repertoire of children diagnosed as non-clinical were taught. The sessions were performed once a week, with duration of approximately one hour.

To increase the probability that the social skills taught were reinforced by the parents so that these behaviors would be generalized, behavioral problems and social skills highlighted by the national literature as that those that differentiated clinical and non-clinical groups [38] were chosen. The teaching of the skills during the sessions was through the functional analysis of the behaviors of the characters in a children's movie. During the story the character and her friends find themselves in difficult situations and exhibit behavioral problems, as well as the social skills necessary so that finally she can perform the role that she was assigned. The film lasts 80 minutes. In addition to the analysis of the behavior of characters in the film recreational activities were performed, such as drawing, stories, theater, puppets and role-playing. During the activities the children were asked to report their behavior at school and at home and to find better ways to behave in these environments. Table 2 describes the procedure.

## 2.6 Data Collection Procedure

The instruments and observation of the interactions were applied, according to their manuals, with the parents and teachers of the

children who participated in the intervention group. The application was performed in the public school that the children attended in a city in the west of São Paulo State.

The researcher conducted the application of each of the instruments with each participant individually. The application took place at four times: baseline (initial interview, explanation of the study, signing of the Terms of Free Prior Informed Consent and clarification of the terms of acceptance, application of the instruments); pre-test (4 months after the baseline); post-test (after the intervention); follow-up (one year after the intervention). Only the parent-child interaction with the memory game did not take place in the first moment (baseline), although, it took place in the other moments, pre-test, post-test and follow-up. For a better evaluation, the interactions were videotaped and the audio from the application of the instruments was recorded.

## 2.7 Data Processing and Analysis Procedure

To evaluate the variations between behavioral problems and social skills presented by the participants during the interactions with the parent, occurrences of the behaviors of parents and children were analyzed during the 10 minutes of the game. The behaviors were recorded minute by minute, i.e., the behaviors that occurred during each of the 10 minutes of observation were recorded in the observation script.

**Table 2. Sequence of aims and techniques worked on in the intervention sessions**

| Sessions | Aims  | Techniques   |
|----------|---|--|
| 1        | To teach the skills: To compliment, to initiate conversations and civility. | 1- Film. 2- Role playing with puppets.   |
| 2        | To teach the skills: To thank, say good things and express opinions.        | 1- Film. 2-Story with balloons. 3- Making a poster with functional analysis.                     |
| 3        | To teach the skills: To make friends, help, play and share things.          | 1- Film. 2-Reading from the book: Bibi share your things. 3-Painting and drawing.                |
| 4        | To teach the skills: To wait their turn and control themselves.             | 1- Film. 2- Scenario from the book: Hunf! I want, I want because I want! 3- Functional analysis. |
| 5        | To teach the skills: To make and respond to requests and to thank.          | 1- Film. 2- Reading of the story: Ana and the mess. 3- Drawing for the end of the story.         |
| 6        | To teach the skills: To name feelings and empathy                           | 1- Film. 2- Functional analysis and making a poster about the feelings.                          |
| 7        | To teach the skills: To compliment, kiss and hug.                           | 1- Film. 2-Reading from the book: Care bears, caring is what counts. 3- Making a book.           |
| 8        | To teach the skills: To admit mistakes, say sorry and listen to criticisms. | 1- Film. 2- Excerpt from an episode of Monica's gang 3- Functional analysis and role-playing.    |

The CBCL and TRF instruments were adjusted by the instrument's integral software. The results indicate whether the children are clinical, non-clinical or borderline for internalizing, externalizing, and total behavioral problems, for the disorders of the DSM-IV: Affective problems, anxiety problems, somatic problems, attention deficit and hyperactivity disorder, challenging problems, and behavioral problems, and for academic performance. The SSRQ- parents and teachers questionnaires were corrected by the sums of the scores obtained for the social skills presented. The score is given according to the frequency of each of the social skills, which can receive 0 (not applicable), 1 (somewhat applicable) or 2 (certainly applicable) points. The RE-HSE-P instrument was corrected from the standards found in its manual, which classifies behaviors of the respondents and their children as clinical and non-clinical for behavioral problems, social skills, positive parenting practices, and negative parenting practices.

### 3. RESULTS

This section presents the results of the participants, comparing the behaviors presented by them before and after the intervention, based on the reports of parents and teachers and on the observation of the interaction between the parents and children.

Table 3 highlights the differences with statistical significance between the variables analyzed and the evaluation phases of the procedure. When comparing the means between the baseline and pre-test, the two phases preceding the intervention, a difference can be verified regarding the child social skills variable from the perspective of the parents (SSRQ-parents), i.e., the children presented a higher frequency of social skills in the pre-test compared to the baseline.

When comparing the pre-test and post-test two variables presented a statistical difference, both presented lower scores in the post-test, which was expected, since higher scores indicate clinical levels, the variables were externalizing behavior from the perspective of the parents (CBCL) and from the perspective of the teachers (TRF). When comparing the pre-test and follow-up phases, and the post-test and follow-up phases the social skills from the perspective of the parents (SSRQ-parents) achieved statistical difference, and in both cases the children had a lower frequency of skilled behaviors in the follow-

up phase. Therefore it can be seen that the externalizing behavior problems variable presented statistically significant improvements in both environments frequented by the children, i.e., from the perspective of the parents and teachers.

Table 4 presents the scores in clinical, borderline, and non-clinical behavioral problems and disorders of the DSM IV presented by the children from the perspective of the parents (CBCL) and teachers (TRF). The main differences found are highlighted in bold in the table. From the data presented by the CBCL, the participants P1, P2 left the clinical level for the non-clinical level for internalizing behavioral problems after the intervention procedure, P2 in the post-test and P1 in the follow-up. The participant P6 left the clinical level and became borderline for this behavioral problem, in the follow-up. Two participants left the clinical level for externalizing problems (P1 and P3), P1 became non-clinical and P3 borderline, in the post-test, however, the two participants returned to the clinical level in the follow-up. Regarding the overall functioning, the participants P2 and P3 went from the clinical level to borderline in the post-test and P3 returned to the clinical level in the follow-up. Therefore, 4 of the 7 participants (P1, P2, P3 and P6) presented improvements after the intervention, according to the scales of the CBCL.

Regarding the disorders of the DSM-IV, P3 and P4 went from borderline to non-clinical for affective problems in the post-test, P3 returned to the borderline level in the follow-up and P4 went to the clinical level. For anxiety problems none of the participants presented improvement after the intervention procedure, and all the participants maintained their non-clinical scores for somatic problems. Concerning attention deficit and hyperactivity disorder P2 moved from clinical to non-clinical in the post-test and P5 moved from clinical to non-clinical in the follow-up. For challenging problem, P5 went from clinical to non-clinical in the follow-up, P6 went from clinical to non-clinical in the post-test and maintained the score in the follow-up, and P7 went from clinical to borderline in the post-test and maintained this in the follow-up. With regard to behavioral problems, P2 went from clinical to borderline in the post-test, P4 went from clinical to borderline in the follow-up, and P7 went from clinical to borderline in the post-test and maintained the score in the follow-up. Regarding the disorders, 6 of the 7 participants presented improvement (P2,



P3, P4, P5, P6, and P7). All the participants presented improvements in their scores in the CBCL instrument.

From the perspective of teachers, that is, in the school environment, the main changes were: P1 and P4 increased from clinical to non-clinical in the follow-up, while P5 went from clinical to borderline in the post-test and returned to a clinical score in the follow-up for externalizing behavioral problems. Participant P1 left the clinical level for the non-clinical level in the follow-up, P4 and P7 left the clinical for the non-clinical level in the post-test and P4 maintained this in the follow-up for internalizing behaviors. Regarding the overall functioning P1 and P4 went from clinical scores to non-clinical in the follow-up. Therefore, five of the seven participants showed behavioral improvements in the school environment (P1, P4, P5, P6 and P7).

In relation to the disorders of the DSM-IV, three participants went to the non-clinical level for emotional problems, they were P1, P4 and P6. Regarding anxiety problems, P1 and P4 went from borderline to the clinical level in the post-test, however, achieved a non-clinical score in the follow-up. For somatic problems P1 went from borderline to the non-clinical level in the post-test and maintained the score in the follow-up. Regarding the attention deficit and hyperactivity disorder, P4 went from clinical to non-clinical in the post-test and maintained this in the follow-up. For the challenging problems, P1 went from borderline to non-clinical in the follow-up, while P5 went from clinical to borderline in the post-test and returned to a clinical score in the follow-up. For behavioral problems none of the participants presented improvements. It can be concluded that P1, P4, P5, and P6 presented improvements for the disorders in the school.

From the perspective of the three participating teachers, P1, P4 and P6 presented improvement in academic performance, P1 went from clinical to non-clinical in the post-test and maintained this in the follow-up, P4 went from clinical to non-clinical in the follow-up, and P6 went from clinical to non-clinical in the post-test, however, returned to the clinical level in the follow-up. The participants P2, P5 and P6 presented an improvement in school performance going from the clinical level to the non-clinical level after the intervention.

Table 4 also presents the social skills score presented by the children in the school and family environments according to the SSRQ-

teachers and SSRQ-parents instruments. From the perspective of the parents, P1, P2, P3, P6, and P7 presented a higher frequency of skilled behaviors after the intervention, while, from the perspective of the teachers, P1, P3, P4, P5, P6 and P7 presented a higher frequency of skilled behaviors after the intervention.

Table 5 presents the description of the behaviors of the parent and of the child according to the RE-HSE-P instrument. Considering the report, the parents of participants P1, P4 and P6 presented improvements regarding the diversity of educational social skills after the intervention procedure, and the parent of P6 also showed an improvement regarding the frequency of these skills. The parent of P1 went from borderline to non-clinical in the post-test and went to the clinical level in the follow-up, the parent of P4 went from clinical to borderline in the post-test and returned to clinical in the follow-up, and that of P6 reached the non-clinical level in the follow-up for frequency and diversity. This shows that some parents presented greater diversity of topographies of appropriate behaviors in relation to the children, however, the frequency of this occurrence remained insufficient.

Regarding the variables of context, for the diversity, the parents of P2 and P4 presented improvement and went from clinical to non-clinical in the post-test and the parent of P4 returned to the clinical level in the follow-up. Regarding the frequency, all the parents were clinical and remained clinical. This variable involves day-to-day situations and dialogue between the parents and the child and, from the clinical levels for the frequency of these behaviors, it can be seen that the interaction between them is scarce.

For the diversity of negative educational practices, the parents of P1 and P3 were non-clinical and maintained this level; the parents of P2 and P5 remained clinical in all evaluation stages, the parent of P6 went to the non-clinical level in the follow-up, and the parent of P7 was non-clinical and became clinical in the post-test and borderline in the follow-up. Regarding the frequency, P1, P2, P3, P4 and P7 were non-clinical and maintained this level; P5 was clinical and became non-clinical and P6 was non-clinical, but became borderline in the post-test and returned to the non-clinical level in the follow-up.

Concerning the diversity of child social skills only P4 presented an improvement in the post-test,

leaving the clinical level for the borderline level, however, he returned to the clinical level in the follow-up. For the frequency, all the participants were clinical and remained clinical, i.e., they presented a low frequency of social skills in the home environment even after the intervention.

For a diversity of behavioral problems P1 was clinical and passed to the non-clinical level in the follow-up, P3 was clinical and maintained this; P2 was non-clinical and maintained this; P4 was non-clinical and became borderline in the post-test and clinical in the follow-up; P5 was clinical and became non-clinical in the post-test and returned to clinical in the follow-up; P6 was clinical and became borderline in the post-test and non-clinical in the follow-up, and P7 was borderline, becoming clinical in the post-test and returning to borderline in the follow-up. Regarding the frequency all the participants were non-clinical and maintained this.

Considering the results presented in Tables 4 and 5, it can be seen that the parent of P1 presented improvements in educational social skills in the post-test and P1 presented improvements in social skills from the perspective of the teachers, as well as leaving the clinical level for internalizing problems from the perspective of the parent and externalizing, internalizing and total problems from the perspective of the teacher. The parent of participant P2 improved the context, which indicates improvement in educational social skills and the child left the clinical level for internalizing and total problems from the perspective of the parent. Participant P3 presented improvements in social skills and total behavioral problems from the perspective of the parent. The parent of P4 presented improvements for educational social skills and context variables and P4 presented improvements in child social skills and left the clinical level for internalizing, externalizing, and total behavioral problems from the perspective of the teacher. The parent of P5 improved negative practices and total positive practices and P5 presented improvements in behavioral problems and social skills from the perspective of the teacher. The parent of P6 presented improvements in diversity and frequency for educational social skills and P6 presented improvements in child social skills in the three instruments, in addition to leaving the clinical level for internalizing behaviors, from the perspective of the parent. The parent of P7

presented improvements in educational social skills and P7 in child social skills.

Table 6 presents the means and *p* values for the behaviors of social skills, behavioral problems, and positive and negative parenting practices, for the pre-test, post-test and follow-up evaluation phases, from the tabulation of the observed behaviors during an interaction situation between the parent and the child participating in the intervention. According to the data presented, when comparing the behaviors observed in the pre-test and post-test phases there was a statistically significant difference regarding the social skills, with the children presenting more skillful behaviors in the post-test. When comparing the pre-test and follow-up phases was no statistically significant difference between the social skills presented in the two phases and between the positive parenting practices presented, both the behaviors were presented with greater frequency in the follow-up phase. When comparing the post-test and follow-up phases there was no statistically significant difference between the behaviors observed.

Table 7 describes the social skills and behavioral problems presented by the children and the positive and negative parenting practices presented by the parents in the interaction during a memory game.

From Table 7 it can be verified that the participants presented more social skills during the interaction after the intervention, when all the skills presented were added and when the skills of each of the categories presented "availability and social cooperation" and "expression of feelings and coping" were added. Only participant P3 presented two fewer social availability and cooperation skills in the post-test compared to the pre-test, however, in the follow-up P3 presented more social skills than in the pre-test (three more). The behavioral problems that were not presented during the interaction are not shown in the table. When analyzing all the behavioral problems presented, participants P3, P4, P5, and P7 showed improvements when comparing the pre-test and post-test, i.e., they presented fewer behavioral problems after the intervention; participants P1 and P6 presented no behavioral problems during the intervention, and P2 demonstrated more behavioral problems after the intervention.

**Table 3. Means and *p* values for the comparisons (Wilcoxon test) between baseline and pre-test, pre-test and post-test, pre-test and follow-up, and post-test and follow-up for the externalizing, internalizing, and total behaviors from the CBCL, child social skills from the perspective of the parents (SSRQ-parents), externalizing, internalizing and total behaviors from the TRF, and child social skills from the perspective of the teachers, from the scores obtained from the parents and teachers responses to the instruments**

|                    | <b>BL / Pre (<i>p</i>)</b> | <b>Pre / Post (<i>p</i>)</b> | <b>Pre / F-U (<i>p</i>)</b> | <b>Post / F-U (<i>p</i>)</b> |
|--------------------|----------------------------|------------------------------|-----------------------------|------------------------------|
| CBCL externalizing | 72.85 / 73.00 (p=1.00)     | 73.00 / 70.00 (p=0.027)      | 73.00 / 71.50 (p=0.753)     | 70.00 / 71.50 (p=0.593)      |
| CBCL internalizing | 69.71 / 71.00 (p=0.197)    | 71.00 / 67.71 (p=0.114)      | 71.00 / 67.33 (p=0.207)     | 67.71 / 67.33 (p=0.197)      |
| CBCL total         | 72.85 / 73.00 (p=1.00)     | 73.00 / 69.42 (p=0.080)      | 73.00 / 69.66 (p=0.068)     | 69.42 / 69.66 (p=0.461)      |
| SS parents         | 25.71 / 29.57 (p=0.042)    | 29.57 / 30.14 (p=0.606)      | 29.57 / 25.66 (p=0.046)     | 30.14 / 25.66 (p=0.026)      |
| Positive total     | 23.71 / 26.56 (p=0.109)    | 26.57 / 27.57 (p=0.734)      | 26.57 / 24.50 (p=0.600)     | 27.57 / 24.50 (p=0.917)      |
| Negative total     | 18.00 / 18.71 (p=0.461)    | 18.71 / 17.28 (p=0.933)      | 18.71 / 17.33 (p=0.345)     | 17.28 / 17.33 (p=0.462)      |
| TRF externalizing  | 69.57 / 74.28 (p=0.180)    | 74.28 / 69.00 (p=0.058)      | 74.28 / 56.50 (p=0.068)     | 69.00 / 56.50 (p=0.144)      |
| TRF internalizing  | 68.28 / 67.85 (p=0.317)    | 67.85 / 68.71 (p=0.395)      | 67.85 / 50.75 (p=0.066)     | 68.71 / 50.75 (p=0.194)      |
| TRF total          | 69.85 / 72.57 (p=0.180)    | 72.57 / 71.00 (p=0.306)      | 72.57 / 54.25 (p=0.068)     | 71.00 / 54.25 (p=0.144)      |
| SS teachers        | 22.85 / 26.00 (p=0.109)    | 26.00 / 28.71 (p=0.752)      | 26.00 / 36.00 (p=0.273)     | 28.71 / 36.00 (p=0.465)      |

**Table 4. Description of problem and disorder scores from the CBCL and the TRF and the observation and description of the scores for academic performance according to the TRF**

|                     | <b>P1</b>              | <b>P2</b>               | <b>P3</b>               | <b>P4</b>               | <b>P5</b>               | <b>P6</b>               | <b>P7</b>               |
|---------------------|------------------------|-------------------------|-------------------------|-------------------------|-------------------------|-------------------------|-------------------------|
| <b>CBCL</b>         | <b>BL/Pre/Post/F-U</b> | <b>BL/Pre/Post/ F-U</b> | <b>BL/Pre/Post/ F-U</b> | <b>BL/Pre/Post/ F-U</b> | <b>BL/Pre/Post/ F-U</b> | <b>BL/Pre/Post/ F-U</b> | <b>BL/Pre/Post/ F-U</b> |
| Internalizing       | C/C/C/N                | C/C/N/*                 | C/C/C/C                 | C/C/C/C                 | C/C/C/C                 | C/C/C/B                 | C/C/C/C                 |
| Externalizing       | C/C/N/C                | C/C/C/*                 | C/B/B/C                 | C/C/C/C                 | C/C/C/C                 | C/C/C/C                 | C/C/C/C                 |
| Total               | C/C/C/C                | C/C/B/*                 | C/C/B/C                 | C/C/C/C                 | C/C/C/C                 | C/C/C/C                 | C/C/C/B                 |
| Affective problems  | C/C/C/C                | N/N/N/*                 | B/B/N/B                 | B/B/N/C                 | C/C/C/C                 | C/C/C/C                 | B/N/B/N                 |
| Anxiety problems    | N/N/N/N                | C/N/C/*                 | C/C/C/C                 | B/B/C/C                 | N/N/N/N                 | N/N/N/N                 | B/C/C/B                 |
| Somatic problems    | N/N/N/N                | N/N/N/*                 | N/N/N/N                 | N/N/N/N                 | N/N/N/N                 | N/N/N/N                 | N/N/N/N                 |
| Attention deficit   | N/N/N/C                | C/C/N/*                 | N/N/N/N                 | B/B/B/C                 | C/C/C/N                 | C/C/C/C                 | N/N/N/N                 |
| Challenging problem | N/N/N/N                | C/C/C/*                 | C/N/N/B                 | B/B/B/C                 | C/C/C/N                 | C/C/N/N                 | C/C/B/B                 |
| Behavioral problems | C/C/C/C                | C/C/B/*                 | N/N/N/N                 | C/C/C/B                 | C/C/C/C                 | C/C/C/C                 | C/C/B/B                 |
| SSRQ-parents        | 34/34/35/29            | 26/27/28/*              | 21/25/27/26             | 33/33/30/19             | 24/28/27/26             | 18/30/29/28             | 24/30/35/26             |
| <b>TRF</b>          |                        |                         |                         |                         |                         |                         |                         |
| Internalizing       | C/C/C/N                | C/C/C/*                 | C/C/C/*                 | C/C/C/N                 | C/C/B/C                 | C/C/C/C                 | C/C/C/*                 |
| Externalizing       | C/C/C/N                | C/C/C/*                 | C/C/C/*                 | C/C/N/N                 | C/C/C/C                 | C/C/C/C                 | C/C/N/*                 |
| Total               | C/C/C/N                | C/C/C/*                 | C/C/C/*                 | C/C/C/N                 | C/C/C/C                 | C/C/C/C                 | C/C/C/*                 |
| Affective problems  | C/C/C/N                | B/C/C/*                 | B/B/B/*                 | C/C/C/N                 | B/B/B/C                 | B/B/B/N                 | N/N/N/*                 |

|                      |             |            |            |             |             |            |            |
|----------------------|-------------|------------|------------|-------------|-------------|------------|------------|
| Anxiety problems     | B/B/C/N     | N/N/N/*    | C/C/C/*    | B/B/C/N     | N/N/N/N     | B/N/B/B    | B/B/C/*    |
| Somatic problems     | B/B/N/N     | N/N/N/*    | N/N/N/*    | N/N/N/N     | N/N/N/N     | N/N/N/N    | N/N/N/*    |
| Attention deficit    | N/N/B/N     | C/C/C/*    | N/N/N/*    | C/C/N/N     | C/C/C/C     | C/C/C/C    | N/N/N/*    |
| Challenging problem  | B/B/B/N     | N/C/C/*    | C/C/C/*    | N/N/N/N     | C/C/B/C     | N/C/N/N    | N/N/N/*    |
| Behavioral problems  | N/N/N/N     | B/C/C/*    | C/C/C/*    | N/N/N/N     | C/C/C/C     | N/C/C/B    | N/N/N/*    |
| Academic performance | C/C/N/N     | N/N/C/*    | N/N/*/*    | C/C/C/N     | N/N/N/C     | C/C/N/C    | N/N/C/*    |
| SSRQ-teachers        | 33/33/40/47 | 20/30/20/* | 26/26/32/* | 25/25/12/47 | 27/27/33/25 | 13/24/24/* | 16/17/40/* |

Key: C= clinical, N= non-clinical, B= Borderline, \*= the parent of the child did not respond to the instrument

**Table 5. Description of behavior of the informants (parent or guardian) regarding the positive educational practices (educational social skills - ESS and context variables) and negative educational practices with each of the children, and of the behaviors of the children (child social skills and behavioral problems) from the report (baseline/pre-test/post-test/follow-up)**

|                              | P1               | P2               | P3               | P4               | P5               | P6               | P7               |
|------------------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|
| RE-HSE-P                     | BL/Pre/Post/ F-U | BL/Pre/Post/ F-U | BL/Pre/Post/ F-U | BL/Pre/Post/ F-U | BL/Pre/Post/ F-U | BL/Pre/Post/ F-U | BL/Pre/Post/ F-U |
| ESS diversity                | B/B/N/C          | B/B/B/*          | C/C/C/C          | C/C/B/C          | C/C/C/C          | B/B/C/N          | C/N/B/B          |
| ESS frequency                | C/C/C/C          | C/C/C/*          | C/C/C/C          | C/C/C/C          | C/C/C/C          | C/C/C/N          | C/C/C/C          |
| Context diversity            | N/N/N/C          | C/C/N/*          | C/N/C/N          | C/C/N/C          | C/C/C/C          | N/N/C/N          | N/N/N/N          |
| Context frequency            | C/C/C/C          | C/C/C/*          | C/C/C/C          | C/C/C/C          | C/C/C/C          | C/C/C/C          | C/C/C/C          |
| Negative practices diversity | N/N/N/N          | C/C/C/*          | N/N/N/N          | N/N/N/C          | C/C/C/C          | C/C/C/N          | N/B/C/B          |
| Negative practices frequency | N/N/N/N          | N/N/N/*          | N/N/N/N          | N/N/N/N          | C/N/N/N          | N/N/B/N          | N/N/N/N          |
| Positive total               | N/N/N/C          | N/N/N/*          | C/N/B/N          | N/N/N/B          | C/B/C/B          | N/N/N/N          | N/N/N/N          |
| Negative total               | N/N/C/C          | C/C/C/*          | C/C/C/C          | N/N/N/C          | C/C/C/C          | C/C/C/N          | C/C/C/C          |
| SS diversity                 | N/N/N/C          | B/B/C/*          | B/C/C/N          | C/C/B/C          | C/C/C/C          | C/N/N/N          | B/N/N/B          |
| SS frequency                 | C/C/C/C          | C/C/C/*          | C/C/C/C          | C/C/C/C          | C/C/C/C          | C/C/C/C          | C/C/C/C          |
| BP diversity                 | C/C/C/N          | N/N/N/*          | C/C/C/C          | N/N/B/C          | C/C/N/C          | C/C/B/N          | B/B/C/B          |
| BP frequency                 | N/N/N/N          | N/N/N/*          | N/N/N/N          | N/N/N/N          | N/N/N/N          | N/N/N/N          | N/N/N/N          |

Key: C= clinical, N= non-clinical, B= Borderline, \*= the parent of the child did not respond to the instrument

In relation to the behaviors of the externalizing category P1, P6, and P7 did not present them during the interactions; P2 and P5 presented more after the intervention, and P3 and P4 presented less after the intervention. Regarding the behaviors of the internalizing category, P1 and P6 did not present them during the interactions; P2 presented more behaviors after the intervention, and P3, P4, P5 and P7 presented them in a lower frequency in the post-test. When comparing the social skills and behavioral problems displayed during the interactions it can be verified that the behavioral problems were demonstrated at a very low frequency, and not demonstrated at all by two of the participants, while the frequency of demonstrated social skills increased when evaluating the phases after the intervention.

All the parents of the participants presented improvements in positive practices after the intervention. Only one practice was presented by the parents of 2 participants (P4 and P6) and two practices by P2. The parents of P1, P3, P5 and P7 presented no negative practices during their interactions with the children.

#### 4. DISCUSSION

The participants presented more social skills after the intervention, with a statistically significant difference and lower frequency of externalizing behavioral problems. This difference was also statistically significant from the perspective of parents and teachers, i.e., in the two main environments and where the children were diagnosed with a high frequency of these behavioral problems. However, when considering the results of the CBCL and TRF, the improvement was not sufficient for the children to leave all the clinical levels for behavioral problems, which leads to a possible difficulty of generalization of the skills learned to the school and family environments., since all the instruments reported an increase in the skills of the children after the intervention. The generalization occurs when a response is emitted in the presence of a stimulus with physical properties similar to the original stimulus that was reinforced [29].

Continuing this reasoning, the results of the RE-HSE-P instrument indicate that the children presented a variety of behaviors, however, with low frequency, both for social skills, and for behavioral problems, also, from the observation of the interaction the children presented a high

frequency of skilled behavior, especially when compared to the behavioral problems presented during the interaction. Crossing data from the two instruments, it can be seen that there was little interaction between the children and their parents in everyday situations, which reduces the likelihood that the social skills and behavioral problems are appropriately consequenced and therefore that the skilled behavior will be maintained in their repertoire, i.e., if there is a stimulus with similar physical properties (in this case the behavior of the parents, when compared to the behavior exhibited by the researcher during the interventions) the probability of the generalization of a response occurring is reduced [29].

Furthermore, the crossing of the data highlights the fact that the children presented a high frequency of social skills in the interactions with the parents, that is, evaluating the reports and the interactions of the participants with their parents it is possible to perceive that when quality interactions occurred, i.e., when the parents devoted themselves to paying attention to the participants they presented a high frequency of social skills, especially when compared to the frequency of behavioral problems, which was low and at times non-existent. Also, when the results of the SSRQ-parents and teachers instruments were evaluated there was an increase in the skilled behaviors exhibited by the children after the intervention, both from the perspective of the teachers and parents. This demonstrates the efficacy of the procedure of using the intervention to teach social skills.

Another possible complication for the generalization of the behavior can be seen when comparing the HSE behaviors, context, and positive and negative practices presented by the parents from the RE-HSE-P instrument, which shows that at times they presented diverse behaviors whether they were appropriate or not for the interaction. However, they presented a low frequency for the majority of the behaviors, i.e., despite knowing how to behave, they did not present the behaviors with a high frequency, which supports the hypothesis that there was little interaction between the parents and child. The lack of interaction may hinder the generalization of the skills learned by the children, since as the behaviors presented are not properly consequenced they lose strength and are replaced by behavioral problems that

**Table 6. Means and p values for the comparisons (Wilcoxon test) between pre-test and post-test, pre-test and follow-up, and post-test and follow-up for the behaviors of social skills, behavioral problems, positive parenting, and negative parenting displayed by the participants and their parents during their interaction in the memory game**

|                             | Pre / Post (p)               | Pre / F-U (p)                 | Post / F-U (p)              |
|-----------------------------|------------------------------|-------------------------------|-----------------------------|
| Child social skills         | 32.28 / 40.42 ( $p= 0.018$ ) | 32.28 / 44.66 ( $p = 0.046$ ) | 40.42 / 44.66 ( $p=0.344$ ) |
| Child behavioral problems   | 3.28 / 1.71 ( $p= 0.345$ )   | 3.28 / 0.500 ( $p= 0.068$ )   | 1.71 / 0.500 ( $p=0.655$ )  |
| Positive parental practices | 23.85 / 29.71 ( $p= 0.089$ ) | 23.85 / 34.00 ( $p=0.028$ )   | 29.71 / 34.00 ( $p=0.596$ ) |
| Negative parental practices | 0.142 / 0.428 ( $p=0.414$ )  | 0.142 / 0.000 ( $p=0.317$ )   | 0.428 / 0.000 ( $p=0.317$ ) |

**Table 7. Total frequency of social skills and behavior problems of the children and of the practices of the parents (in the pre-/post-test/follow-up) in the observation of the interaction with the parents**

|  | P1           | P2           | P3           | P4           | P5           | P6           | P7           |
|--|--------------|--------------|--------------|--------------|--------------|--------------|--------------|
|  | Pre/Post/F-U | Pre/Post/F-U | Pre/Post/F-U | Pre/Post/F-U | Pre/Post/F-U | Pre/Post/F-U | Pre/Post/F-U |
| Social availability and cooperation total    | 23/28/26     | 23/26/*      | 18/16/21     | 22/23/19     | 11/14/24     | 22/34/42     | 10/20/22     |
| Expression of feelings and displeasure total | 20/21/21     | 18/20/*      | 03/07/20     | 20/20/22     | 18/18/18     | 9/23/23      | 12/13/10     |
| Social skills total                          | 43/49/47     | 41/46/*      | 21/23/41     | 42/43/41     | 26/32/42     | 31/57/65     | 22/33/32     |
| Externalizing problems total                 | 0/0/0        | 0/5/*        | 1/0/0        | 2/0/0        | 0/4/1        | 0/0/0        | 0/0/0        |
| Internalizing problems total                 | 0/0/0        | 0/2/*        | 0/0/0        | 0/0/0        | 10/02/0      | 0/0/0        | 9/0/2        |
| Behavioral problems total                    | 0/0/0        | 0/7/*        | 1/0/0        | 2/0/0        | 11/05/1      | 0/0/0        | 9/0/2        |
| Positive practices total                     | 34/37/36     | 28/30/*      | 20/13/32     | 23/32/33     | 11/31/27     | 32/39/51     | 19/26/25     |
| Negative practices total                     | 0/0/0        | 0/2/*        | 0/0/0        | 1/0/0        | 0/0/0        | 0/1/0        | 0/0/0        |

Key: \* = The child and the parent changed city and it was not possible to locate them. \*\* The behaviors that did not appear during the interaction are not shown in the table

were already installed in the repertoire. As pointed out by [17], the lack of monitoring and inconsistent parental discipline facilitates the repertoire of anti-social behavior of children.

The study indicates the difficulty in working only with the children, mainly because they do not have the necessary conditions to modify the environment in order to maintain appropriate behaviors, since the behavioral problems present an important function and are therefore already installed. This reinforces the studies [18,23,26, 27] that recognize the importance of working with parents or combining the treatment of parents and children for the best results.

The interaction showed that the children presented the social skills learned in the group when their parents gave them attention and related to them, and that in this environment there was generalization of what had been learned, since the parents reinforced the appropriate behaviors through positive practices. Another fact perceived was that when there was a positive attention situation the children presented no behavioral problems, since they obtained reinforcement when behaving properly, therefore the parents did not present negative practices. This reinforces the vast amount of literature that indicates the influence of the parenting practices on the behaviors of the children [12,14,15,16,17]. In addition this emphasizes the importance of a reinforcing environment with positive attention, as in the therapeutic environments, so that the children can present behaviors learned during the intervention.

From the observation of the interaction all the parents presented improvements in the frequency of positive practices (ESS) in the interaction after the intervention. This may be a consequence of the increase in social skills displayed by the children in the post-test, as previously stated, the behaviors of parents and children work as intertwined contingencies, i.e., as the children interact appropriately the parents consequence appropriately and vice versa [11]. From the results of the RE-HSE-P instrument only the parent of the participant P6 left the clinical level for positive practices (HSE) with regards to the frequency, which reinforces the fact that a positive interaction in the family environment did not exist.

Studies have demonstrated that guidance to parents and teachers associated with the social

skills intervention procedure with children facilitates the generalization of the social skills learned by the children during the intervention for school and family environments, as stated by [21] in a literature review. [23] and [27] indicated that studies involving interventions with teachers and family therapy present better results regarding the generalization of the behaviors of children.

## 5. CONCLUSION

After the procedure the children presented a higher frequency of social skills in the school and family environments and a low frequency of behavioral problems during an interaction with their parents, however, the children did not leave the clinical levels for all the behavioral problems when the results of all the instruments were evaluated. The study indicates there was generalization [29] behaviors learned during the sessions, which could be visualized in situations of positive interaction, but not enough to take the children's clinical level for all instruments. There were improvements in the parental behavior, especially in relation to positive practices presented during a filmed situation of interaction with the children, even though the parents had not taken part in the intervention, which leads to the possibility of the change of behavior of the children having influenced the behavior of the parents [11,12,14-17].

In a situation of interaction, i.e., exclusive attention, the children presented a low frequency of behavioral problems, when compared to the social skills presented by them during this period, which leads to the affirmation that when the environment, in this case the parents, interacts positively they do not need to exhibit behavioral problems to receive attention. An intervention that directly involves the parents, including guidance and discussions on parenting practices and the behaviors of the children, could facilitate the generalization and maintenance of the social skills learned and presented by the children during the intervention sessions [21,27].

For future research it is important that the evaluations of the parent-child interactions involve situations that may generate conflict and negotiation from free situations, such as presenting more than one activity and waiting for them to choose which activity will be performed, which increases the probability of behavioral problems appearing in the interaction, allowing these to be worked on in a focal way. Another

important point is the instruction to parents and teachers so that the behavior skills presented can be reinforced adequately in the school and family environments and thus their generalization facilitated [9,33,34].

## NOTE

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## COMPETING INTERESTS

Authors have declared that no competing interests exist.

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