

# Review of interventions to improve pragmatic language skills in children with behaviour and attention problems

## Revisión de intervenciones para mejorar las habilidades pragmáticas en niños y niñas con problemas de conducta y atención

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### Abstract:

Pragmatic language is the socially appropriate use of language in accordance with the context in which interactions take place. In view of this, deficiencies in pragmatic skills have a significant impact on psychosocial adjustment. Recent evidence has shown that children who present behavioural problems usually display these linguistic difficulties as well. The aim of this work is to analyse different interventions intended to improve the pragmatic skills of children with behavioural and/or attention problems and discuss the evidence of the results. After a literature search, nine interventions were found: five aimed at children with behavioural problems and four intended for children with attention and hyperactivity problems. The results showed that, while the characteristics of the interventions varied considerably, they generally achieved positive results, especially when they were implemented using a systemic approach with

other educational agents participating (such as the family or peer group). Even so, the lack of available evidence suggests that further research into evidence-based interventions to help children improve their pragmatic, communicative, and social competences is required.

**Keywords:** pragmatic language, behavioural problems, ADHD, intervention, social communication

### Resumen:

El lenguaje pragmático hace referencia al uso socialmente apropiado del lenguaje en función del contexto en que las interacciones tienen lugar. Por tanto, los déficits en las habilidades pragmáticas tienen importantes repercusiones sobre el ajuste psicosocial. Evidencias recientes han puesto de mani-

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fiesto que los niños y niñas que presentan problemas de conducta suelen experimentar también estas dificultades lingüísticas. Este trabajo tiene por objeto analizar diferentes intervenciones destinadas a mejorar las habilidades pragmáticas de niños y niñas con problemas de conducta y/o atención y discutir las evidencias de sus resultados. Tras la búsqueda bibliográfica, se localizaron nueve intervenciones, cinco dirigidas a niños y niñas con problemas conductuales y cuatro para menores con problemas de atención e hiperactividad. Los resultados mostraron que, aunque las características de las intervenciones eran

muy variadas, en general se lograron con ellas efectos positivos, especialmente cuando se realizaban desde un enfoque sistémico y participaban otros agentes educativos (como la familia o el grupo de iguales). Aun así, la escasez de evidencia al respecto invita a seguir investigando sobre intervenciones basadas en la evidencia que ayuden a los niños y niñas a mejorar sus habilidades pragmáticas, comunicativas y sociales.

**Descriptor:** lenguaje pragmático, problemas de conducta, TDAH, intervención, comunicación social.

## 1. Introduction

Language, in its broadest sense, is the main tool by which we establish and continue social interactions. Analysing linguistic competence involves studying the phonological, morphological, syntactic, semantic, and pragmatic components of language. The phonological level includes the set of phonemes and sounds in a language, the morpholexical level comprises the words that form the vocabulary of a language, the syntactic level comprises the formation of more complex meaning structures based on sequencing lexemes, the semantic level refers to understanding of the meanings of the language, and the pragmatic level refers to the social use of language (Puyuelo and Rondal, 2003). In accordance with these components, language acquisition involves learning to use the constituent elements of a language (its lexicon), its combination rules (morphosyntax), and strategies to adapt the message to the social context where

the communicative act occurs (pragmatics). Without neglecting the importance of any of the levels of language, the study of pragmatics deserves special attention as it can be seen as the basis of social interaction.

From a historical perspective, some believe that Roman Jakobson was one of the first thinkers to uphold the pragmatic purpose of language, as he studied the pragmatic function language and the receiver's intentionality in the communication process (Pinazo and Pastor, 2006). Other give Charles Morris the honour of being the first to define pragmatics as «the science of linking signs to their interpreters» (López and Hernández, 2016). Whatever the case, the contributions by these linguists have given rise to more complex and sophisticated studies on the pragmatic capacity of language. For example, thanks to the use of techniques for simulating artificial neural networks, it

has been observed that artificial intelligence can construct correct grammatical structures and detect errors in them. It has still, however, been unable to handle semantic and pragmatic information given its inability to obtain it from the surroundings (Rondal, 2011). In this respect, it is clear that sophisticated handling of language is not just a case of producing or understanding chains of words. Instead, it requires the capacity to combine these lexemes in dialogues and know how to adapt them to the social settings in which one interacts.

It is this particular ability that is impaired in pupils with pragmatic difficulties who display reasonably intact phonology, morphology, syntax, and semantics but have difficulties in correctly using and interpreting language in communicative exchanges. In particular, the main manifestations of pragmatic problems are difficulties in: drawing inferences about messages and intentions (for example, interpreting messages literally), noticing the interlocutor's needs or whether this person has understood the message, following the rules that govern discourse (for example, respecting starts and turn-taking in conversation), or distinguishing and using appropriate discourse registers for the context (Rondal, 2014). As a consequence, pragmatic difficulties can significantly affect the quality of communicative exchanges and the comprehension of social relations, hindering the socio-emotional and behavioural development of people who experience them.

Deficits in pragmatic skills have been observed in children with a wide range of developmental disorders. They

have traditionally been linked to Autism spectrum disorders (ASD), and the bulk of the interventions carried out to stimulate pragmatic functioning have been performed in this population. However, recent studies have shown that pragmatic difficulties are not exclusive to these disorders (Gibson, Adams, Lockton, and Green, 2013) but that they also appear in association with other circumstances that frequently create special educational needs (SEN). In this context, a growing body of research has started showing that children with pragmatic language problems often also display behavioural difficulties such as disruptive behaviour, oppositional, and defiant behaviour, impulse control deficits, or attention deficit hyperactivity disorder (ADHD) (Goh and O'Kearney, 2013).

Two lines of research were drawn from the literature review: one line analysing language disorders in children with behavioural problems and, another examining behavioural problems in children with language difficulties.

With regards to the first line, the meta-analysis by Hollo, Wehby, and Oliver (2014) concludes that approximately 4 out of every 5 children aged between 5 and 13 with emotional and behavioural disorders showed low scores in language tests. The prevalence of language disorders in this population is around 81%-95%, a figure that is significantly higher than for children who do not have these difficulties (3%-14%) (Law, Boyle, Harris, Harkness and Nye, 2000). For their part, Gilmour, Hill, Place, and Skuse (2004) estimated that approximately two thirds of children with behavioural problems also had defi-

cits in pragmatic behaviour. These difficulties were also comparable in nature and severity to those observed in children with autism.

When specifically reviewing the literature on concrete behavioural problems, the study by Gremillion and Martel (2014) stands out, showing lower performance in pragmatic and expressive language skills in preschoolers children with ADHD, oppositional and defiant behaviour, and disruptive behaviour in comparison with other defiant behaviour without behaviour disorders. Regarding ADHD, studies examining the presence of language problems in children and adolescents with these needs have proliferated in recent years. A good summary of the literature published to date can be found in the meta-analysis by Korrel, Mueller, Silk, Anderson, and Sciberras (2017). In it they reviewed 21 researches that compared the performance in language tests of a clinical group of children with ADHD and a control group. From the analysis of the results they concluded that children with ADHD showed worse functioning in expressive, receptive, and pragmatic language skills. Regarding the pragmatic components, Staikova, Gomes, Tartter, McCabe, and Halperin (2013) found evidence of difficulties in handling discourse (e.g. respecting turn-taking, interruptions, etc.), drawing inferences, and narrative discourse. Furthermore, according to these authors, pragmatic deficits shape the relationship between ADHD and social competences. These results have very interesting implications for educational guidance, as it appears that the symptoms of ADHD do not directly explain these children's poor social competences,

but instead the pragmatic deficits that underlie this disorder.

As stated above, other studies have provided evidence that the relationship between language and behaviour runs in the other direction. In other words, they have shown that children with language disorders, more specifically deficits in pragmatic skills, often also display behavioural problems. In this vein, Conti-Ramsden, Moka, Pickles, and Durkin (2013) observed that adolescents with a history of language disorders experienced relationship problems, emotional symptoms, hyperactivity, and behavioural problems more frequently than their peers.

Although the direction of this relationship is not entirely clear, longitudinal studies suggest that it runs from language to behaviour. For example, in a meta-analysis of longitudinal studies, Yew and O'Kearney (2012) observe that children with specific language difficulties in early childhood experience behavioural problems, attention problems, and hyperactivity more frequently and more severely than those who have normative development of their linguistic skills. In fact, they observe that the probabilities can double. According to this model, language disorders, and more specifically those affecting pragmatic skills, could increase the probability of behavioural and social problems appearing (St Clair, Pickled, Durkin, and Conti-Ramsden, 2011). This is explained by the limitations that children with pragmatic difficulties experience when communicating and understanding implicit messages, needs, or feelings. According to Brinton and Fujiki (2000) these difficulties could lead to frustration and

high stress levels. Furthermore, in social contexts they can have a negative impact on these children's relationships with peers as instead of expressing their own needs assertively, they use more maladjusted relationship models, increasing the risk of defiant or aggressive behaviour. In this sense, several studies suggest that children with pragmatic deficits display less prosocial behaviour (Bakopoulou and Dockrell, 2016) and display lower levels of social competence (Puglisi, Cáceres-Asenço, Nogueira, and Befi-Lopes, 2016).

Nonetheless, although the relationship between language and social competence is reasonably well documented in the literature, in practice it seems to be much less well recognised. Recent data show that language difficulties often go undetected among children with behaviour and attention problems (Cohen, Frania, and Im-Bolter, 2013). This is partly because diagnostic evaluation protocols do not generally examine functioning in language areas. Furthermore, in the case of ADHD it is suggested that pragmatic deficits are sometimes masked by the symptoms of hyperactivity. This underdetection can have important repercussions in the area of the intervention that might focus on behavioural problems and lead to underlying language difficulties being ignored.

Ultimately, pragmatic language difficulties are SENs that can affect the development of socio-cognitive competences and underlie many of the behavioural problems observed in schools. Therefore, from the educational perspective, it is vital to be aware of evidence-based interventions that make it possible to tackle these difficulties in the school setting.

With the objective of making progress in this direction, the aim of this work was to review and synthesise the available literature on educational interventions intended to work on pragmatic language skills in children with behaviour and attention problems.

## **2. Review of interventions to improve pragmatic skills**

A synthesis is provided below of aspects relating to the design, implementation, evaluation, and results of interventions performed in recent years to work on the pragmatic components of language with children with attention problems during the school stage. The description and analysis of the interventions carried out is arranged in three sections according to the profile of the population for which they were designed. The first section describes the results of five interventions aimed at children with behavioural problems. The second section describes four interventions for children with ADHD. Finally, and in addition to the aim of this work, a third section sets out another five studies that describe interventions to stimulate pragmatic skills in children with other SENs.

All of the studies evaluating interventions used a quasi-experimental pretest-posttest design comparing baseline scores with post-intervention scores. In some of them these data were also compared with a control group that did not receive the treatment. Of the nine interventions reviewed, two did not have any effects on improving pragmatic skills. Table 1 shows the data from the studies that did achieve significant changes in these skills.

TABLE 1. Synthesis of the characteristics and results of interventions to improve pragmatic skills in children with behaviour and/or attention problems.

Source/ Country	n (age)	SEN	Research design	Areas of intervention	Results
Cordier, Munro, Wilkes-Gillan, and Docking (2013) Australia	14 boys and girls (5-11)	ADHD	Quasi-exper- imental pre- test-posttest design. Comparison of means and effect size.	Verbal and non-verbal communication, turn-taking, so- cio-emotional ad- justment, use of language, social competences, and creativity.	Improving pragmatic language.
Cordier et al. (2017) Australia	9 boys and girls (6-11) and their mothers	ADHD	Quasi-exper- imental pre- test-posttest design with control group. Comparison of means and effect size.	Starting or maintaining conversations, non-verbal communication, understanding emotions, exec- utive function, and negotiating.	Improving pragmatic language.
Corkum, Corbin, and Pike (2010) Canada	16 boys and girls (8-12)	ADHD	Quasi-exper- imental pre- test-posttest design. Comparison of means.	Starting or maintaining conversations, introducing oneself, making statements, speaking as- sertively, using polite expres- sions, asking for and offering help, giving and accepting criti- cisms, joining in with play, and negotiating.	Improving pragmatic language and social competenc- es.
Heneker (2005) United Kingdom	10 boys and girls (6-11)	Be- havioural, emotion- al, and learning problems.	Quasi-exper- imental pre- test-posttest design. Comparison of means and qualitative interpretation.	Understanding and using infer- ential language and vocabulary, social com- petences and discourse.	Improving the areas covered.

Source/ Country	n (age)	SEN	Research design	Areas of intervention	Results
Hyter, Rogers-Adkinson, Self, Simmons, and Jantz (2001) USA	6 boys (8-12)	Be- havioural and emotional problems.	Quasi-exper- imental pre- test-posttest design. Comparison of means.	Describing objects, giving instructions, discussing inappropriate behaviour, and negotiating.	Improving the de- scription of objects, giv- ing instruc- tions, and respecting turn-taking.
Hyter (2003) USA	2 boys (4)	Risk of be- havioural problems	Quasi-exper- imental pre- test-posttest design. Comparison of means and qualitative interpretation.	Verbal and non-verbal communication, style of play, awareness of own skills, regu- lating behaviour, and empathy.	Verbal/ non-verbal commu- nication, pragmatics, and me- ta-cognition improve- ments.
Law and Sivyer (2003) United Kingdom	20 boys and girls (9-11)	Be- havioural and emotional problems.	Quasi-exper- imental pre- test-posttest with control group design. Comparison of means.	Language skills, social communication, self-esteem, and emotional/ behavioural adjustment.	Improv- ing use of language, social com- munication, and self-es- teem.

### 2.1. Interventions for children with behavioural problems

A total of five interventions were identified intended to improve the pragmatic skills of children aged between 4 and 12 who have behavioural problems and who also in some cases showed emotional difficulties.

Hyter et al. (2001) worked on describing objects, giving instructions, reflecting on inappropriate behaviour, and negotiation in a group of 6 children educated in a special educational centre. In each session the teacher acted as a model in a role-play so that the pupils could learn to imitate the desired behaviour. The group

was divided into pairs or groups of three to practise, and in the following session they put into effect what they had learnt. In this model the pupils improved the most simple pragmatic skills (describing objects and giving instructions), but not more complex ones. In addition, the group also learned to respect turn-taking, although this pragmatic skill was not proposed in the design.

Some years later, Hyter (2003) prepared a model for preventing behavioural disorders under the framework of the «Head Start» programme, a programme aimed at meeting the educational needs of children from families with a low so-

cio-economic level. The intervention was performed with two boys who displayed aggressive behaviour towards their peers and had difficulties using communicative skills correctly. To train pragmatic skills, professionals (researchers from Head Start and from the school), collaborating with the children's classmates, employed techniques such as the use of models to show how to do the desired behaviour, dramatization or role-play, internal and parallel dialogue (the professional describes aloud what she and the pupil are doing or experiencing at the same time that it is being done), *shadowing* (or a period of professional observation in which pupils spend some time being «an expert's shadow» and observing her to learn how she does the task), and the techniques of scaffolding (the professional acts as a guide and facilitator for resources during the process of constructing learning). Although it was necessary to wait for the final evaluation to compare the children's progress with the baseline, Hyter noted that improvements in interaction patterns were apparent from the first month of the intervention. After four months, their pragmatic skills improved significantly, especially in the case of the second child. As a result, both replaced their aggressive and violent behaviour with attitudes based on respect and empathy, and started to be aware of their communicative skills and their peers' perception of them. Law and Sivyer (2003) and Heneker (2005) intervened in «pupil referral units» (PRUs), a type of educational centre attended by children who have been excluded from their schools. Law and Sivyer designed a model of ten sessions to work on language problems, communicative skills, and behavioural

problems. In this framework they used activities and games focused on accepting rules, active listening, organising vocabulary, describing objects, problem solving, reasoning, and drawing inferences. After the intervention, improvements could be seen in pragmatic and social competences, although changes at the behavioural level were not achieved.

As for the second programme used in pupil referral units, Heneker (2005) proposed a personalised intervention model in four areas: using and understanding vocabulary, general language use, pronunciation, and social competences (learning to listen, being aware of communication style, respecting turn-taking, identifying and expressing emotions). Social competences were trained individually twice a week throughout a term. Few data are provided regarding the results, but the author claims that the children improved in the skills trained.

Although Stanton-Chapman, Kaiser, and Wolery (2006) did not achieve improvements in pragmatic skills it is worth sharing details of the design of their programme. They used two types of material for the intervention: a series of personalised stories in which the protagonists were the children who were receiving the programme, and other materials for carrying out performances with a defined theme («doctor», «animal doctor», «hairstylist», and «building»). The children with behavioural problems (also in the Head Start programme) took part in workshops with peers to represent the situations described in the stories and so work on five pragmatic skills (starting conversations, responding appropriately to interventions by



peers, catch the attention of interlocutors by calling them by their names, respecting turn-taking, and maintaining visual contact during interaction). The peers from the normative group corrected their classmates' erroneous behaviour with reminders. Although the results obtained do not make it possible to prove the usefulness of this programme to modify problematic behaviour or train socio-linguistic skills, the programme is a good example for thinking about the use of play materials as tools for interventions.

## 2.2. Interventions for children with ADHD

This section considers four interventions aimed at stimulating pragmatic development in boys and girls with ADHD aged between 5 and 12.

These interventions were supported by play as a resource for working on the interaction skills of pupils with ADHD. Regarding the use of play materials to train pragmatic skills, play is a powerful socialisation tool as well as a natural learning context. Through play, children can learn pragmatic skills like respecting turn-taking, verbalising thoughts, and sharing concepts (Docking, Munro, Cordier y Ellis, 2013). In view of this, Corkum et al. (2010) proposed an intervention model based on «Working together: building children's social competences through folk literature», a programme for working on social competences in the context of folk tales. In each session they worked on one skill (conversation, self-presentation, making positive statements to other people, speaking assertively, using polite expressions, asking for help, offering help,

giving and receiving criticism, joining in with a game, and negotiating). To practice these skills, the children followed direct instructions relating to folk tales and real-life situations. They practised the skills and received feedback through role-playing games. In addition, at the end of each session, the families and teachers were given information and advice to reinforce this learning. After the intervention, the children with ADHD showed improved pragmatic and social competences.

Cordier et al. (2013) also used play and peers as tools to improve pragmatic skills. The children with ADHD invited their «normative» peers to play with them. A therapist recorded the interaction and from this material prepared conflict-resolution situations that were commented on and debated afterwards. The therapist also incentivised children to play together. After seven sessions of games and reflection in pairs, the children with ADHD had improved their pragmatic skills (handling the content of conversation, turn-taking, body language, conflict resolution, etc.).

A few years later, Cordier et al. (2017) expanded their previous proposal to include participation by the children's families (specifically their mothers). This intervention was performed in the home: interactions during play between the mother and the child were recorded so that therapists could analyse the content and offer guidelines for positive interaction for the children. The areas analysed were: introducing a conversation, body language, understanding other people's emotional reactions, executive function, and the ability to negotiate. At the end of this programme, improvements were ob-

served in the aforementioned pragmatic skills, something that seems to validate the efficacy of the model of intervention based on play and directed by the families.

Dockin et al. (2013) used the same intervention model based on play as Cordier et al. (2013). While they did not note improvements in pragmatic skills, they did observe them in the ability to solve conflicts.

Although the interventions described offer a wide range of strategies, tools, and ways of approaching the problem, various common elements can be derived from analysing them together. Firstly, areas of intervention, among which training in the protocol for conversations, in ver-

bal and non-verbal communication, and in self-awareness and self-regulating behaviour are especially important. Secondly, the importance given to the environment and the different agents that can participate, as it is shown that the most successful interventions are ones in which families, guardians, various educational professionals, and even peers participate.

### 2.3. Interventions for children with other SENs

Finally, a description of five studies is provided in which interventions for improving the pragmatic skills of children with other SENs are reviewed (see Table 2).

TABLE 2. Interventions to improve pragmatic skills in other populations.

Op Cit.	SEN	Methodology	Objective	Conclusions
Adams et al. (2012)	Other language disorders	Designing a manual with intervention ideas	Preparing a manual that contains a model for intervention in social communication.	Although not all of the initial hypotheses are fulfilled, the pilot study does contain a promising proposal for an intervention to train communicative and listening skills.
Lanter et al. (2016)	Intellectual disability	Single case	Offering strategies to increase functional communication behaviour (promoting the use of verbal requests).	The subject is incentivised to make verbal requests through alternative and augmentative communication strategies (pictograms) and verbal reminders.
Moreno et al. (2012)	Victims of child abuse	Pretest-post-test intervention without control group	Increasing functional communicative skills, relating to adults and problem solving, and generalising to the child's natural contexts.	Significant improvements are found in the formulation of requests, asking for attention, maintaining conversations, and expressing agreement/disagreement.

Op Cit.	SEN	Methodology	Objective	Conclusions
Parsons, Cordier, Munro, Joosten, and Speyer (2017)	Autistic spectrum disorders	Meta-analysis	Evidence-based review and analysis of the interventions currently performed to improve pragmatic language skills.	The most effective interventions focus on the child-family pairing and on including peers. Programmes do not work on all pragmatic areas simultaneously. The generalisation of results to other contexts is questioned.

As can be deduced from the wide range of SENs displayed in the population for which the interventions were designed, deficits in pragmatic skills can occur in pupils with very different profiles. Consequently, there is a need to propose personalised strategies and programmes according to the children's needs to encourage pragmatic language.

Parsons et al. (2017) analysed the efficacy of 15 interventions for working on pragmatic language in children with ASD. As described above, the characteristics varied between the interventions, but most worked on non-verbal communication, interpreting facial expressions and tone of voice, and preverbal communication. None of the interventions analysed covered negotiation skills or the executive function, nor did they offer a comprehensive treatment for all of the pragmatic areas, something that again indicates the shortcomings of the interventions intended for this linguistic area.

Another example of intervention is the Social Communication Intervention Project (Adams et al., 2012). This is an intervention model that includes a manual with recommendations to personalise treatment of children with pragmatic

problems or communication disorders. Although when published it was a pilot project, from that moment it already offered an effective model with play activities (playing with puppets and designing posters) to work on conversational and listening skills).

It is interesting to find specific interventions in populations where the pragmatic area is not traditionally covered, such as the research by Lanter, Russell, Kuriakose, and Blevin (2016), or by Moreno, García-Baamonde, Blázquez, and Pozueco (2012). The first of these studies is a single-case one that studies the efficacy of different strategies for training a seven-year-old boy with Down's syndrome in the use of requests. Using different strategies (communicative ideas offered by the surroundings, pictograms for augmentative and alternative communication, reminders to correct errors in communicative behaviour, etc.) his functional communication improved, and, as a side effect, so did his pronunciation. Overcoming the criticisms of the meta-analysis by Parsons et al. (2017), the intervention even enabled him to start generalising his new communicative strategies in other situations and with new agents, with him initiating the requests himself.

Moreno et al. (2012), in their study present a programme for working on pragmatic communication in 21 children who had suffered abuse in early childhood and who had problems with their social and interpersonal adjustment. They first worked on the meanings of words and phrases in social situations and then increased the complexity of the interactions. The different strategies were: starting and maintaining conversations, making requests and formulating demands, narrative skills, inferential tasks (like learning to detect irony and lies), and recognising emotions. Improvements in these skills were observed after completion of the programme.

These results as a group could prove various facts. Firstly, many children have linguistic needs that are hidden by other problems such as behavioural disorders. Secondly, these very deficits in language can affect other more visible developmental areas. And thirdly, there are few specific interventions to improve pragmatic language and those that do exist can rarely guarantee that their results can be generalised to natural settings. Finally, although there are many pilot interventions with promising results, further research is needed. All of this leads us to reflect on how the evaluation of pragmatic skills, intervention, and the extent to which they meet children's needs are presented, questions that are discussed below.

identified that are specifically designed for working on pragmatic skills in pupils with behaviour and attention problems. In addition, another four interventions have been described that, while they intended for pupils with other needs, provide relevant information that could be applicable to ones with behaviour and attention problems.

According to the literature reviewed, we believe that there is still a significant lack of published studies into educational intervention, and that this is especially evident in the case of Spain: there are studies with descriptive and correlational designs that prove the relationship between pragmatic skills and behaviour and attention problems, but no publications about interventions were found. The difficulty of finding interventions focussed on improving pragmatic skills in this population might point to a more complex problem. The available literature has shown that pupils with these needs also show shortcomings in the use of pragmatic language. Nonetheless, performance in language areas is rarely examined during diagnostic assessments in the clinical and educational settings. Instead, the evaluation is usually more cognitive-behavioural in character, focussing on the more visible aspects or observable behaviour and ignoring implicit linguistic processes (Watson, Richels, Michalek, and Raymer, 2015). Consequently, problems in this area of language are neither detected nor treated. As stated above, the lack of evaluation can mask the need for intervention, creating a vicious circle in which actions to improve pragmatic skills are not designed, and so awareness of the

### 3. Conclusions and reflections on the contributions of the literature

For this synthesis of the scientific bibliography, interventions have been

importance of detection and intervention in pragmatic difficulties is not created, thus perpetuating the failure to detect them.

The masking of pragmatic issues, as well as denying one of the potential roots of children's adjustment problems, also affects the appropriateness of the intervention. For example, the programme by Presentación, Siegenthaler, Jara, and Miranda (2010) intended to facilitate the academic, emotional, and social adjustment of pupils with ADHD is based on self-instructions alongside techniques such as anger management and problem solving. As Hyter et al. proposed (2001), children with emotional or behavioural problems can often score well on certain tests, giving the impression that their pragmatic skills are adequate, when in reality the deficiencies are apparent in situations of interaction. Therefore, it is worth asking whether the proposals of the programme are the most appropriate for facilitating the children's psycho-social adjustment, since if the status of their linguistic area is unknown, it will not be clear whether this has (or does not have) an influence on the problems these children display.

As is shown in the previous section, the characteristics of these interventions were reasonably heterogeneous, with a large variety in regards to intervention strategies and the resources used. For example, the intervention by Cordier et al. (2013) was based on play as a tool for interaction between children with ADHD and their peers without these difficulties. Relying on literary elements combined with role-plays, Stanton-Chapman et al.

(2006) used personalised cartoons and Corkum et al. (2010) used folk tales. In a similar fashion, Hyter et al. (2001) worked on different skills through role-play.

This is not just a question of the range of the tools and strategies, but also of methodological evaluation questions. In other words, all of the studies used a quasi-experimental pretest-posttest design to test their effectiveness. That said, some explained in detail the measures used to test the effects of the intervention, while in others the data were enough to draw conclusions about the efficacy of the intervention. For example, Cordier et al. (2017) calculated different effect sizes for testing the magnitude of the change between the pre- and posttest situation, while Heneker (2005) only compared the average pre- and posttest scores.

Within this wide range of methodological possibilities, some studies show that, while a significant improvement in pragmatic skills was not achieved, the intervention did have positive effects on other dimensions. This is what happened with Docking et al. (2013) and Stanton-Chapman (2006) in whose research other areas improved (such as an increase in problem solving skills), which were not the object of intervention.

This might be the result of many factors, but it does lead us to reflect on the following question: what is being intervened on? Behaviour or language? And, if it is language, is the intervention really in the pragmatic area? Within this wide methodological variety, different measurements were used in each study. For example, Cordier et al. (2017) use a spe-

cific observational measurement to evaluate children's pragmatic skills, along with two other screening instruments to describe the children's language, and other complementary instruments to measure behaviour. In contrast, Law and Sivyer (2003) evaluate semantic-pragmatic language and socio-communicative skills as distinct elements. There is also the case of Heneker (2005), who exclusively relies on linguistic measurements to evaluate how children use language, vocabulary, and communicative skills. Nonetheless, the problem does not lie in using different measurements to evaluate pragmatic skills; instead this expands the possibilities of the specialists who intervene with the children. The problem is that there is no agreement on a single definition of what the «pragmatic area» is. In light of this situation, it is worth asking if the results meet the definition of pragmatic language, or if they match behavioural patterns that could fit into other constructs.

Ultimately, this diversity in interventions could be positive, as it shows that there are many ways of approaching and improving the pragmatic deficit, although it also makes it hard to establish a common and systematic framework for intervention. This is especially relevant as most of the interventions presented in this review are pilot studies or have a limited duration, and so applying the suggested activities and strategies could lead people to regard them with mistrust. However, despite their limitations, the studies described offer tools for stimulating the development of pragmatic skills in pupils with behavioural and attention difficulties.

#### 4. Educational implications

The foregoing invites us to carry out a final reflection on the educational implications of these intervention in pragmatic language in pupils who have behaviour and attention problems. Basically, why is it necessary to intervene in pragmatic language skills? Different pieces of research into pragmatic and communicative development show that this is crucial to help children develop their linguistic skills and so facilitate their emotional, social, and behavioural adaptation and adjustment. By offering strategies to encourage pragmatic and social competence, we help children acquire social competences with which they can build positive links and support networks, thus taking care of their relationships with the different people in their development contexts.

Therefore, it is advisable to include a specific section for the pragmatic area when evaluating pupils who present behavioural and attentional issues. Pragmatic deficits can affect how we interact, especially in children as they are still establishing their skills for solving problems, understanding the structure of dialogue, or understanding the inferences of language. Since many types of maladjusted behaviour can be explained by deficits in the pragmatic area of language, this aspect should be considered in evaluations and in interventions to avoid perpetuating communicative problems.

In general, the lack of evidence-based interventions that limit and define the areas in which to work show that there are still a number of unfinished tasks. Firstly, the interventions described take place in different educational contexts. Although

the work is done in a natural setting, these interventions must guarantee that the skills acquired can be generalised to other settings and situations (Corkum, et al., 2010). Secondly, the interventions are primarily aimed at children aged between 3 and 12, overlooking the fact that language problems can be present in adolescence (Parsons et al., 2017). This means there are no interventions specific to adolescence, a gap that is in urgent need of being filled. Thirdly, although there are publications in Spain regarding pupils with pragmatic deficits, there are no studies on the application of effective evidence-based interventions. If there is a need that must be met to encourage the healthy development of children, it is necessary to continue research into it.

Ultimately, the professionals who work with these pupils have to be ready to identify their needs and know how to intervene in light of them. As is shown in the different interventions, the systemic approach is the best focus for approaching these problems, as when the different educational agents (from families to teachers, and including peers) assume responsibility and get involved in the process, the results of the intervention are better for the pupils. Therefore, if the educational system is to respond adequately to the demands of children it is necessary to train its professionals and offer guidance to families.

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