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Relationships between pragmatic abilities, school well-being and psychological health in typically developing children

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Abstract

Background: A growing body of literature shows relationships between behavioral problems and pragmatic abilities in children with neurodevelopmental disorders. However, the link between pragmatic skills, school well-being and psychological health in typically developing children is still under explored. The present study was aimed at an analysis of the relationships between well-being, behavioral problems, and pragmatics in Italian children from the general population.

Methods: The sample included sixty typically developing children, their mothers, and their teachers. The mothers completed the Children's Communication Checklist, second edition, the Questionnaire on School Well-being and the Child Behavior Checklist, questionnaires that evaluate children's pragmatic abilities, school well-being, and psychopathological symptoms, respectively. The teachers completed the Questionnaire on School Well-being.

Results: Close relationships between pragmatic abilities and school well-being were found. In particular, according to both mothers and teachers, Stereotyped language and Use of context were the two pragmatic variables most strongly associated with school well-being. Pragmatic abilities were also linked to externalizing and internalizing symptoms and with specific behavioural problems such as social and attentional problems.

Conclusions: This study sheds light on the close relationships between pragmatic abilities and school well-being and psychological health in typically developing children. We discuss the relevance of focusing attention on early pragmatic competences in children and the importance of considering the school as a crucial setting for psychological assessment and interventions.

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1. Introduction

Well-being is a complex construct that includes physical, emotional, cognitive, social, and economic domains (Pollard & Lee, 2003). Different factors can have effects on children's physical and emotional well-being (Amerijckx & Humblet, 2014); among these, the recent literature has indicated family adversity and the school context (e.g., Scrimin et al., 2018). Considering that children spend approximately a third of their waking hours at school for most days throughout the year, it appears crucial to evaluate children's psychological well-being at school.

Konu and colleagues (2002) proposed a model of 'school well-being' that included four components: (i) school conditions (physical environment surrounding the school, environment inside the school); (ii) social relationships (social learning environment, student–teacher relationships, relations with schoolmates, group dynamics, bullying, cooperation between school and home, decision-making in schools, atmosphere of the whole school organization); (iii) means of self-fulfillment (the school contribution to the children's self-esteem); and (iv) health status (absence of disease and illness).

Recently, Tobia and colleagues (2019) introduced a multi-informant approach that considered the student school situation from the points of view of both the children and the significant adults indirectly or directly involved in school life (i.e., parents, teachers). In this model, well-being, parents' and teachers' thoughts, education, and learning with achievements/learning were interconnected. Some studies have shown how the parent perception of their children can influence the school performance and the self-concept of the children themselves (e.g., Frome & Eccles, 1998). What the parents think about their children's abilities can predict the academic achievements and the children's self-fulfillment (Wigfield et al., 2006). Moreover, the presence of a supportive family is an important protective factor for the children's development and well-being (Scrimin et al., 2018).

Finally, recent studies (e.g. Benassi et al., 2020) underlined the importance of assessing school well-being in typically developing (TD) children or with neurodevelopmental disorders (e.g. Specific Learning Disorders) taking into account the mothers' point of view, in order to get a complete picture of the child's emotional difficulties at school and consequently to provide an efficient support.

It is therefore essential to consider the point of view of the parents with respect to both the children's academic skills and their feelings toward school.

In addition to the parents, the second category of adults who have important roles in the children's lives are their teachers. The relationships between children and teachers appear to influence the children's academic well-being. According to recent studies, dealing with stressed teachers can in turn worsen the student experience (e.g., Breeman et al., 2015). These studies underlined the importance of investigating not only parent insight, but also the teachers' observations of the children's school well-being and their personal experiences in relation to the children's difficulties at school. In line with this, and with the multidimensional well-being concept introduced by Tobia (Tobia et al., 2019), in the present study, we considered school well-being as cognitive, emotional, and social domains from the perspectives of both the mothers and the teachers.

Recently, well-being and quality of life have also been linked to language skills. Such studies are still limited, but they have reported negative impacts of speech and language disorders on well-being and daily life. In particular, receptive language impairments appear to have negative consequences for social functioning and everyday well-being (Van Agt et al., 2011). Unexpectedly, studies of the links between pragmatic abilities and well-being in different contexts are still limited, including for schools.

A recent broad definition of pragmatics includes all behaviours that encompass social, emotional and communicative aspects of social interaction (Adams & Lloyd, 2005). Pragmatics refers to both linguistic functions, such as register (altering one's speech depending upon whom one is speaking to), negotiation of turn-taking, and the choice of referential expressions ("a" versus "the"), as well as to non-linguistic functions, such as eye contact, body language and facial expressions. The language pragmatics is the ability to use language properly in interactions with other people and to interpret language correctly in social contexts or in communicative exchanges (Milligan et al., 2007; Tager-Flusberg, 1999).

The development of pragmatics begins in early childhood and continues until adulthood (Turkstra et al., 2017). Primary school is an important period for the development of pragmatics, as communication exchanges become even more important for the children to establish and maintain social relationships (Hemphill & Siperstein, 1990). The children's abilities to talk about a topic during a conversation and to respond during dyadic exchanges are implicated in the children's success in making friends and being accepted by their friends, with the consequent development of high self-fulfillment. Pragmatic communication skills determine the success in social interactions not only with peers, but also with parents, teachers, and other interlocutors (Bierman, 2004). Considering the recent school well-being model of Konu et al.

(2002) that includes the social relationships with peers and teachers and the means of self-fulfillment, the role of pragmatic difficulties on children's well-being at school appears plausible.

In the present study, we focused on TD children. Indeed, to the best of our knowledge, the literature lacks studies on the relationships between pragmatic skills and school well-being in TD children. Pragmatic abilities have been studied mainly in children with different neurodevelopmental disorders, such Specific Language Disorder, SLD (e.g., Katsos et al., 2011), Autism Spectrum Disorder, ASD (e.g., Eigsti et al., 2011; Filippello ate al., 2013), Attention Deficit and Hyperactivity Disorder, ADHD (e.g., Fortea et al., 2018), and Developmental Dyslexia, DD (e.g., Ferrara et al., 2020). Interestingly, the findings in these clinical populations have suggest a close relationship between pragmatic abilities and behavioral problems, such as antisocial behavior, conduct disorders (e.g., Donno et al., 2010), and inattention/ hyperactivity problems (Leonard et al., 2011). Rodas et al. (2017) showed that pragmatic abilities are linked to both anxiety and externalizing behaviors in children with ASD. Moreover, in a longitudinal study, Conti-Ramsden & Botting (2004) reported that the majority of children with language difficulties when they were initially studied at 7 years old were experiencing social and behavioral problems at 11 years old.

Instead, only few studies focused on the relationships between behavioral problems and pragmatic competence in TD children. Interestingly, Sullivan and colleagues (2016) found that poor pragmatic language in middle childhood can precede early and late psychotic experiences and late adolescent depression. The authors suggested the importance of identifying pragmatic difficulties and childhood interventions to prevent later psychopathology. In fact, if poor pragmatic language could cause later disorders an effective intervention which improves this skill may reduce the risk. However, the mechanism under this association is still not clear and further studies are need.

1.1 The Present Study

To address the gaps in the literature to date, the first aim of the present study was to examine the relationships between school well-being and pragmatic abilities in a group of Italian TD primary school children, from the point of view of their mothers, and in particular, of their teachers. As language pragmatic skills are very important in various well-being domains (e.g., peer relationships, school activities), we hypothesized that there are close associations between pragmatics and school well-being in this group of TD children.

As the second aim of the present study, we investigated the relationships between pragmatic abilities and psychological health. According to the literature, we expected a link between pragmatic abilities and both internalizing and externalizing behaviors.

2. Methods

2.1 Participants

The final sample included 60 TD children (31 boys, 29 girls) with mean age 8.9 years (SD = 0.76; range = 8-11 years) and their mothers and teachers. The participants were recruited through local primary schools. All of the children were fluent Italian speakers, and none of them had any history of developmental delay, learning disorders, or neurological, visual, or hearing impairments.

The typical development of these children was verified by a psychologist through the use of neuropsychological tasks. The children's nonverbal IQ were determined using Colored Progressive Matrices (Italian version by Belacchi et al., 2008). Children with a nonverbal IQ less than 85 were not included.

The children's language abilities were evaluated using standardized tasks that determined their receptive grammar skills (Test for Reception of Grammar [TROG]-2; Bishop, 2009; Italian version by Suraniti et al., 2009), receptive vocabulary (Peabody Picture Vocabulary Test–Revised [PPVT-R]; Italian version by Stella et al., 2000), and expressive vocabulary (Boston Naming Test; Italian version by Riva et al., 2000). Their reading speed and accuracy were measured using the MT-3 reading text (Cornoldi & Carretti, 2016). Children with language difficulties and with reading impairments were excluded. In line with the full exclusion criteria, four of the children from the initial enrollment were excluded.

2.2 Procedures

The families were invited to participate through announcements posted in schools. The parents were informed in detail about the aims of the study, the voluntary nature of their participation, and their right to withdraw from the study at any time. The parents gave their informed written consent for participation in the study, and for the data analysis and data publication. The questionnaires about pragmatic abilities, school well-being, and behavioral problems were distributed to the mothers by the teachers. The teacher version of the questionnaire about school well-being was completed by the coordinating teacher of the class. The decision to involved mothers rather than the fathers was based on the existing literature that shows a higher

level of participation of the mothers and more precise answers in report samples completed by mothers (e.g., Scorza et al., 2018).

The questionnaire about school well being was proposed to a small number of children as well. Only a few of them were able to fill in the questionnaire without significant doubts and difficulties. For this reason we decided to disregard the children's opinions of their perceived well-being. This choice is in line with previous evidence that has shown that children in the primary school can still struggle to describe their difficulties using self-reporting measures (Varni et al., 2007), and they generally underestimate their problems (Rotsika et al., 2011).

This study met the ethical guidelines for the protection of human subjects, including adherence to the legal requirements of the country (Declaration of Helsinki).

2.3 Measures

2.3. 1 Children's Communication Checklist, second edition

The Communication Checklist, second edition (CCC-2; Bishop, 2003; Italian version by Di Sano et al., 2013) is a standardized checklist of pragmatic and social communication behaviors. The CCC-2 includes a total of 70 items that are divided into 10 subscales that investigate different aspects of communication: (A) *Speech*; (B) *Syntax*; (C) *Semantics*; (D) *Coherence.* (E) *Inappropriate initiation*; (F) *Stereotyped language*; (G) *Use of context*; (H) *Nonverbal communication*; (I) *Social relationships*; and (J) *Interests*. The first four subscales (A, B, C, D) measure structural language aspects; subscales E, F, G and H evaluate pragmatic skills in children involved in conversation; the last two subscales (I and J) measure skills in social relationships and interests.

Each subscale comprises 7 items that are aimed at an investigation of the strengths and weaknesses of children. The respondents are asked for a frequency judgment about how often behaviors occur, on a 4-point scale.

Moreover, there are four main composite scores that can be calculated: the General Communication Composite (GCC) score; the Social Interaction Deviance Composite (SIDC) score; the Structural Language Composite (SLC) score; and the Pragmatic Language Composite (PLC) score. In line with the aim of this study, only the pragmatic scales were selected (i.e., E, F, G, H), along with the PLC. For some examples of pragmatic items see Table 1.

Table 1. CCC-2 pragmatic scales with sample items

CCC-2 scales	Sample items
E. Inappropriate initiation	Parla ripetutamente di cose alle quali nessuno è interessato [Talks repetitively about things that no-one is interested in]
F. Stereotyped language	Dice cose che non sembra comprendere del tutto (può sembrare che ripeta cose sentite dire dagli adulti). Ad esempio, un bambino di 5 anni può dire di un insegnante "Gode di un'ottima reputazione. [Says things he or she does not seem to fully understand or seems to be repeating something he or she heard an adult say (e.g. a 5-year-old describing a teacher by saying, "she's got a very good reputation")]
G. Use of context	(+) Fa confusione quando una parola è usata con un significato differente da quello usuale: ad esempio, può non riuscire a comprendere se una persona poco amichevole viene descritta come "fredda" (e pensa che stia rabbrividendo) (+) [Gets confused when a word is used with a different meaning from usual: e.g. might fail to understand if an unfriendly person was described as 'cold' (and would assume they were shivering!)]
H. Nonverbal communication	Sta troppo vicino alle altre persone quando parla con loro [Stands too close to other people when talking to them]

2.3.2 Questionnaire on School Well-being

The Questionnaire on School Well-being (QBS; Tobia & Marzocchi, 2015) is a recently validated instrument that was designed to measure the dimensions of well-being at school for children from 3rd to 8th grade from three perspectives, as those of the children themselves, their parents, and their teachers. The children's version of the QBS includes 27 items and 5 subscales. The parent and the teacher versions of the QBS include 36 items and 5 subscales: personal experience in relation to the child's difficulties; evaluation of the learning processes; the child's emotional difficulties at school; the child's awareness of his/her school performances; and the child's relationship with the teachers (in the parent version) or with the parents (in the teacher version). The responses to the questionnaires are given on a 3-point Likert scale, from not true (0) to very true (2).

2.3.3 Child Behavior Checklist

The Child Behavior Checklist (CBCL; Achenbach, 1991; Achenbach & Rescorla, 2001; Italian adaptation by Frigerio et al., 2004) is a standardized measure of emotional, social and behavioral problems in children and adolescents. This includes three instruments: the Parent Report Form

(PRF); the Teacher Report Form (TRF); and the Youth Self-Report (YSR). The Italian version of the CBCL-PRF was used here. This consists of 113 items that describe whether the child/adolescent is currently exhibiting, or has exhibited within the past 6 months, specific emotional and behavioral problems. It is completed by the parents using a 0-1-2 Likert scale (0, not true; 1, somewhat or sometimes true; 2, very or often true). Eight sub-scales can be derived here, as: *Withdrawn/ depressed*; *Somatic complaints*; *Anxious/ depression*; *Social problems*; *Thought problems*; *Attention problems*; *Rule-breaking behavior*; and *Aggressive behavior*. It also has a scale for *Sex problems*. Three more inclusive scales arise from combinations of some of the sub-scales: Internalizing; Externalizing; and Total problems score. Among these composite scores, only the Internalizing and Externalizing scores were considered in the present study.

2.4 Data analysis

All of the statistical analysis was carried out using SPSS 23.0 for Windows, with an alpha level of 0.01. Prior to the analysis, the data were checked for violation of assumptions of normality and homogeneity of variance using Kolmogorov–Smirnov and Levene tests, respectively.

The first aim analyzed the relationships between the CCC-2 scores and first the QBS mothers' total scores, and secondly the QBS teachers' total scores, using Spearman's correlations. For the second aim, the relationships between the CCC-2 scores and the CBCL scores were analyzed using Spearman's correlations.

3. Results

3.1 Relationships between school well-being and pragmatic abilities

The correlations between the CCC-2 scores and the QBS scores are presented in Table 2. For the QBS mother version, there were significant relationships between the PLC score and the QBS total score. In the analysis of each of the CCC-2 scales, the QBS total score was significantly related to the CCC-2 *stereotyped language"* (F) and *use of context"* (G) scales. The associations remained significant also when the data were controlled for nonverbal IQ.

For the associations between the CCC-2 and the QBS teacher version, the PLC score was significantly related to the QBS total score. Analysis of the correlations in more depth showed that each CCC-2 pragmatic scale was significantly associated with the QBS total score reported by the teachers (Table 2). These correlations did not lose significance when the data were controlled for nonverbal IQ.

Table2. Correlations between the children's pragmatic abilities and school well-being

	QBS (total score)	
CCC-2 (mother)	**Mother**	**Teacher**
Inappropriate initiation (E)	.218 (.282)	.435** (.431**)
Stereotyped language (F)	.389** (.417**)	.444** (.445**)
Use of context (G)	.343** (.356**)	.408** (.417**)
Nonverbal communication (H)	.252 (.300)	.402** (.416**)
Pragmatic Language Composite score (PLC)	.381** (.407**)	.483** (.505**)

Note. Partial correlations with control for nonverbal IQ are given in parentheses.

** $p < .01$ (all significance tests are two-tailed).

3.2 Relationships between psychopathological symptoms and pragmatic abilities

The correlations between the CCC-2 scales and the CBCL scores are presented in Table 3. This analysis showed that the PLC score was significantly associated with both the CBCL Internalizing and Externalizing scores.

For each of the CCC-2 subscales, there were significant correlations between the CBCL Internalizing score and three of the pragmatic scales (*Stereotyped language* [F], *Use of context* [G], *Nonverbal communication* [H]), and between the CBCL Externalizing score and two of the pragmatic scales (*Use of context* [G], *Nonverbal communication* [H]). Significant correlations were also seen between the CCC-2 pragmatic measures and the CBCL scales for *Social problems* and *Attention problems*. The full results of this analysis are shown in **Table 3.**

These significant associations between the CCC-2 pragmatic scales and the CBCL scores remained significant also when the data were controlled for nonverbal IQ. In this analysis, further significant associations were seen between: the CBCL Internalizing score and the *Inappropriate initiation* (E) scale; the CBCL Externalizing score and both the *Inappropriate initiation* (E) and *Stereotyped language* (F) scales; and the CBCL *Attentional problems* and *Nonverbal communication* (H) scale.

Table 3. Correlations between the children's pragmatic abilities and psychological/ behavioral problems.

	CCC-2 (mother), pragmatic scale				
CBCL (mother)	**Inappropriate initiation (E)**	**Stereotyped language (F)**	**Use of context (G)**	**Nonverbal communication (H)**	**Pragmatic Language Composite score**
Internalizing score	- .311 (- .348**)	- .360** (- .411**)	- . 353** (- .349**)	- .390** (- .419**)	-.436** (- .457**)
Externalizing score	- .323 (- .346**)	- .314 (- .371**)	- .349** (- .385**)	- .364** (- .403**)	- .417** (- .445**)
Social problems	- .417** (- .423**)	- .510** (- .508**)	- .388** (- .349**)	- .452** (- .428**)	- .514** (- .506**)
Attentional problems	- .355** (- .371**)	- .358** (- .380**)	- .321 (- . 316)	- .323 (- .362**)	- .412** (- .424**)

Note. Partial correlations with controlling for nonverbal IQ are given in parentheses

** $p < .01$ (all significance tests are two-tailed)

4. Discussion

To the best of our knowledge, this is the first study that provides an in-depth investigation into the relationships between pragmatic abilities and school well-being in TD children. The study was grounded on three pillars: (i) the multidimensional school well-being model proposed by Tobia (Tobia et al., 2019); (ii) the well-documented relationships between student well-being and both academic and social functioning (e.g., Djambazova-Popordanoska, 2016); and (iii) the role of language pragmatic abilities in social interactions with peers, family, and teachers (e.g., Bierman, 2004).

The data here show close relationships between language pragmatic abilities and school well-being. According to mother and teacher reports, our findings indicate that the children's ability to use language suitably in communicative exchanges was linked to school well-being. School is one of the main contexts in which children are asked to use their language and communicative abilities, to be accepted by their peers and to have success in academic situations. Therefore, having good pragmatic skills might favor children's school well-being and positive feelings during their interactions with peers or adults (Westby & Culter, 1994). The ability to initiate topics, to maintain them, and to produce new expressions are fundamental skills in any interactions with others (Bierman, 2004), and thus we can hypothesize that pragmatics might play a crucial role on social relationships and academic performance, which are usually based on language abilities and interactions with peers and teachers (Van Agt et al., 2011).

Specifically, as reported by the mothers, low *Stereotyped language* and *Use of context* were the two pragmatic variables that were most strongly associated with school well-being. This result is in line with previous studies showing that children that have difficulties in the use of language pragmatics, both in comprehension as well as in production, will be less involved in academic activities and might have problems in their relationships with peers and teachers (Bierman, 2004; Mok et al., 2014). Considering the natural and universal desire of humans to build and maintain positive relationships, the failure to satisfy these needs can lead to negative outcomes for the children's well-being (Maner et al. 2007).

According to the teachers' point of view, *Inappropriate initiation* and *Nonverbal communication* were also related to the children's general school well-being. It appears likely that the teachers are more able to identify competences and any related problems in children compared to the mothers, particularly as they spend a lot of time with the children in the school context. Thus, it seems fundamental for clinicians to work in concert with teachers, in the assessment of psychological and behavioral problems.

The second goal of this study was to investigate the relationships between the pragmatic abilities and behavioral problems of these TD children. Previous studies have reported strong links between pragmatic difficulties and social and behavioral problems in children with neurodevelopmental disorders (Ketelaars et al., 2010; Leonard et al., 2011; Rodas et al., 2017; Tahan & Kalantari, 2018). Moreover, recent findings have shown that large proportions of children with emotional/behavioral difficulties experience significant language problems, including pragmatic difficulties (Benner et al., 2002; Mackie & Law; 2010).

However, only a few studies have focused on TD children, and the data are still mixed. Overall, these studies have indicated relationships between low pragmatic competences and behavioral problems (Ketelaars et al., 2010). Interestingly, Korhonen and colleagues (2014) reported links between social and communicative competences in children and both chronic internalizing and externalizing problems, and they underlined the importance of the evaluation of internalizing problems for children with social or academic problems. In a longitudinal study, Sullivan (Sullivan et al., 2016) found that deficits in pragmatic language at 9 years were associated with early and late adolescent psychotic experiences and early adolescent depression.

The data from the present study provide new evidence to support the past literature through showing that also in TD children, low pragmatic skills are related to externalizing and internalizing symptoms. Difficulties in communicative exchanges with peers or adults can result in lower self-esteem and anger (Hartas, 2012) and will therefore be associated with increased social internalizing and externalizing behaviors also in TD children. Poor language ability may

lead also to more social isolation due to the reduced ability to communicate effectively with peers. This condition could precede depression and psychotic experiences (Joiner & Timmons, 2009; Sullivan et al., 2015).

Our data show that three pragmatic abilities are related to psychological problems: *Stereotyped language, Use of context, and Nonverbal communication.*

Our results also support the link between the pragmatic and social domains. Indeed, the children with the lower pragmatic abilities were those with more social problems compared to their peers. More specifically, according to our data, the ability to use language pragmatics in the communicative context seems to be linked with lower difficulties in making friends, being accepted by peers and with a lower level of both loneliness and dependence to adults. Similar results were found in recent studies on children with neurodevelopmental disorders (e.g., ASD and ADHD). Berenguer and colleagues (2018) observed a significant association between pragmatic abilities and social functioning in children with ASD. The authors argued that pragmatic skills seem to be essential in developing successful social interactions and in particular they underlined the role of skills such as initiation of communication, the use and interpretation of language appropriate to the context, or the command of non-verbal communication to achieve an appropriate functioning in social situations.

In the present study, pragmatic abilities, such as *Inappropriate initiation*, *Stereotyped language*, and *Nonverbal communication* abilities in particular, were also significantly related to attention problems. These data represent novel aspects here, as they show that inattention was significantly negatively related to pragmatics with these TD children. Similar and unique results on children from general population were reported by Leonard et al. (2011), as negative relationships between hyperactivity, inattention, and language pragmatics, and they described the role of pragmatics in mediating social skills and hyperactivity or inattention problems. Our data agree with those found in clinical samples as well. Interestingly, previous studies on children with ADHD (for a review see Carruthers et al., 2021), showed specific difficulties with inappropriate initiation, presupposition, social discourse, and narrative coherence. Only few theories have been proposed to account for the link between pragmatic difficulties and inattention. According to one hypothesis pragmatic deficits could be a consequence of inattention and impulsivity on verbal and nonverbal communication, whereas other authors argued that inattention seems to contribute to pragmatic impairments by reducing the opportunities for children to practice their social communication skills (e.g., Hawkins et al., 2016).

5. Limitations

The present study is not free from limitations. First, the sample size is small, and so replication of the results in larger samples is needed.

Secondly, the data are limited to a single age point. It might be useful to plan longitudinal studies that are aimed at the verification of the persistence of the relationships between pragmatic abilities, school well-being, and psychological health at later ages. Indeed, as suggested by Helland (Helland et al., 2014) the pragmatic difficulties reported in childhood appear not to be transient; rather they seem to persist into adolescence, negatively affecting the development of successful social relationships, which may again lead to escalating behavioral problems. Moreover, severe difficulties in pragmatic language are associated with early and late adolescent psychotic experiences and early adolescent depression (Sullivan et al., 2016). Longitudinal design would be necessary to determine the direction of the causal relationship between the variables analyzed in our study.

Lastly, given the difficulties in generalizing the revealed skills in clinical settings to what happens in everyday life, we decided to use parent reports. However, even though a checklist could provide important information about child's pragmatic abilities used in everyday life, a problem inherent in this tool is that informants may vary both in their ability to understand the items and in their subjective interpretations and biases (Bishop & McDonald, 2009). In fact, parents could have difficulties in understanding and in detecting some pragmatic behaviors that sometimes are overt or must be inferred. Therefore, it could be useful to include standardized tasks and naturalistic observations in order to evaluate social communication (e.g. turn taking, interrupting and use of eye contact) and pragmatic language abilities (e.g. comprehension of irony and humour) in different contexts.

In line with these considerations, future studies should examine pragmatic abilities by comparing different assessments, in order to get a complete picture of the child's pragmatic development (Adams, 2002).

6. Conclusions

To conclude, given the relationships between pragmatic abilities, school and psychological well-being in TD children, our findings support the inclusion of pragmatic abilities in psychological screening and educational programs. Moreover, our study suggests that Clinical Psychology should consider the school as a crucial setting for interventions and assessment (Carrozzino et al., 2019).

Finally, considering that lower well-being and behavioral problems associated to pragmatic abilities appear to be lifelong (Helland et al., 2014), and that pragmatic impairments in primary school might influence the ability to establish relationships in adulthood (Whitehouse et al., 2009), early identification of pragmatic difficulties even in children without evident psychological distress and/or psychopathological symptoms (i.e., such as the TD children here) might prevent difficulties that would occur later in their development.

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Conflict of Interest Statement

The authors declare that the research was conducted in the absence of any potential conflict of interest.

References

1. Achenbach, T. M. (1991). *Manual for the Child Behavior Checklist/4-18 and Profile.*
2. Achenbach, T. M., & Rescorla, L. A. (2001). *Manual for the ASEBA school-age forms and profiles.*
3. Adams, C. (2002). Practitioner review: The assessment of language pragmatics. *Journal of child psychology and psychiatry, 43*(8), 973-987. https://doi.org/10.1111/1469-7610.00226
4. Adams, C., & Lloyd, J. (2005). Elicited and spontaneous communicative functions and stability of conversational measures with children who have pragmatic language impairments. *International journal of language & communication disorders, 40*(3), 333-347. https://doi.org/10.1080/13682820400027768
5. Adams, C., Lockton, E., Freed, J., Gaile, J., Earl, G., McBean, K., ... & Law, J. (2012). The Social Communication Intervention Project: a randomized controlled trial of the effectiveness of speech and language therapy for school-age children who have pragmatic and social communication problems with or without autism spectrum disorder. *International Journal of Language & Communication Disorders, 47*(3), 233-244. https://doi.org/10.1111/j.1460-6984.2011.00146.x
6. Amerijckx, G., & Humblet, P. C. (2014). Child well-being: What does it mean?. *Children & Society, 28*(5), 404-415. https://doi.org/10.1111/chso.12003
7. Belacchi, C., Scalisi, T. G., Cannoni, E., & Cornoldi, C. (2008). *Matrici progressive di raven forma colore (CPM-47): Manuale d'uso e standardizzazione italiana [Raven Coloured Progressive Matrices (CPM-47): Manual and Italian standardization]. Organizzazioni Speciali*
8. Benassi, E., Camia, M., Giovagnoli, S., & Scorza, M. (2020). Impaired school well-being in children with specific learning disorder and its relationship to psychopathological symptoms. *European Journal of Special Needs Education, 1-15.* https://doi.org/10.1080/08856257.2020.1842975
9. Benner, G. J., Nelson, J. R., & Epstein, M. H. (2002). Language skills of children with EBD: a literature review. *Journal of Emotional and Behavioral Disorders, 10*(1), 43-56. https://doi.org/10.1177/106342660201000105
10. Berenguer, C., Miranda, A., Colomer, C., Baixauli, I., & Roselló, B. (2018). Contribution of theory of mind, executive functioning, and pragmatics to socialization behaviors of children with high-functioning autism. *Journal of Autism and Developmental Disorders, 48*(2), 430-441. https://doi.org/10.1007/s10803-017-3349-0
11. Bierman, K. L. (2004). *Peer rejection: Developmental processes and intervention strategies*. Guilford Press.
12. Bishop, D. V. (2003). *The children's communication checklist: CCC-2*. Harcourt Assessment.
13. Bishop, D. V. (2009). *TROG 2: Test for Reception of Grammar-Version 2*. Edizioni Giunti OS.
14. Bishop, D. V., & McDonald, D. (2009). Identifying language impairment in children: Combining language test scores with parental report. *International Journal of Language & Communication Disorders, 44*(5), 600-615. https://doi.org/10.1080/13682820802259662

15. Breeman, L. D, Wubbels, T, van Lier, P. A. C, Verhulst, F. C, van der Ende, J, Maras, A, … Tick, N. T. (2015). Teacher characteristics, social classroom relationships, and children's social, emotional, and behavioral classroom adjustment in special education. *Journal of School Psychology, 53*(1), 87-103. https://doi.org/10.1016/j.jsp.2014.11.005
16. Carrozzino, D., Costabile, A., Patierno, C., Settineri, S., & Fulcheri, M. (2019). Clinical psychology in school and educational settings: emerging trends. *Mediterranean Journal of Clinical Psychology, 7*(1). https://doi.org/10.6092/2282-1619/2019.7.2138
17. Carruthers, S., Taylor, L., Sadiq, H., & Tripp, G. (2021). The profile of pragmatic language impairments in children with ADHD: A systematic review. *Development and Psychopathology*, 1-23. https://doi.org/10.1017/S0954579421000328
18. Conti-Ramsden, G., & Botting, N. (2004). Social difficulties and victimization in children with SLI at 11 years of age. *Journal of Speech, Language, and Hearing Research, 47*(1), 145-161. https://doi.org/10.1044/1092-4388(2004/013)
19. Cornoldi, C., & Carretti, B. (2016). *Prove MT avanzate-3-clinica: la valutazione delle abilità di lettura e comprensione per la scuola primaria e secondaria di 1. grado: manuale. [Advanced MT-3 clinical tests: assessment of reading and comprehension skills for primary and secondary school 1st grade: manual]* Giunti Edu.
20. Djambazova-Popordanoska, S. (2016). Implications of emotion regulation on young children's emotional wellbeing and educational achievement. *Educational Review, 68*(4), 497-515. https://doi.org/10.1080/00131911.2016.1144559
21. Donno, R., Parker, G., Gilmour, J., & Skuse, D. H. (2010). Social communication deficits in disruptive primary school children. *The British Journal of Psychiatry, 196*(4), 282-289. https://doi.org/10.1192/bjp.bp.108.061341
22. Eigsti, I. M., de Marchena, A. B., Schuh, J. M., & Kelley, E. (2011). Language acquisition in autism spectrum disorders: a developmental review. *Research in Autism Spectrum Disorders, 5*(2), 681- https://doi.org/10.1016/j.rasd.2010.09.001
23. Ferrara, M., Camia, M., Cecere, V., Villata, V., Vivenzio, N., Scorza, M., & Padovani, R. (2020). Language and Pragmatics Across Neurodevelopmental Disorders: An Investigation Using the Italian Version of CCC-2. *Journal of Autism and Developmental Disorders*, 50, 1295-1309. https://doi.org/10.1007/s10803-019-04358-6
24. Filippello, P., Marino, F., & Oliva, P. (2013). Relationship between weak central coherence and mental states understanding in children with Autism and in children with ADHD. *Mediterranean Journal of Clinical Psychology, 1*(1). https://doi.org/10.6092/2282-1619/2013.1.888
25. Fortea, I. B., Forner, C. B., Colomer, C., Casas, A. M., & Miranda, B. R. (2018). Communicative skills in Spanish children with Autism Spectrum Disorder and children with Attention Deficit Hyperactivity Disorder. Analysis through parents' perceptions and narrative production. *Research in Autism Spectrum Disorders*, 50, 22-31. https://doi.org/10.1016/j.rasd.2018.02.006

26. Frigerio, A., Cattaneo, C., Cataldo, M., Schiatti, A., Molteni, M., & Battaglia, M. (2004). Behavioral and emotional problems among Italian children and adolescents aged 4 to 18 years as reported by parents and teachers. *European Journal of Psychological Assessment, 20*(2), 124-133. https://doi.org/10.1027/1015-5759.20.2.124
27. Frome, P. M., & Eccles, J. S. (1998). Parents' influence on children's achievement-related perceptions. *Journal of personality and social psychology, 74*(2), 435. https://doi.org/10.1037/0022-3514.74.2.435
28. Hartas, D. (2012). Children's social behaviour, language and literacy in early years. *Oxford Review of Education, 38*(3), 357-376. https://doi.org/10.1080/03054985.2012.699748
29. Hawkins, E., Gathercole, S., Astle, D., Holmes, J., & CALM Team. (2016). Language problems and ADHD symptoms: How specific are the links?. *Brain sciences, 6*(4), 50. https://doi.org/10.3390/brainsci6040050
30. Helland, W. A., Lundervold, A. J., Heimann, M., & Posserud, M. B. (2014). Stable associations between behavioral problems and language impairments across childhood - the importance of pragmatic language problems. *Research in Developmental Disabilities, 35*(5), 943-951. https://doi.org/10.1016/j.ridd.2014.02.016
31. Hemphill, L., & Siperstein, G. N. (1990). Conversational competence and peer response to mildly retarded children. *Journal of Educational Psychology, 82*(1), 128. https://doi.org/10.1037/0022-0663.82.1.128
32. Joiner, T. E., Jr., & Timmons, K. A. (2009). Depression in its interpersonal context. In I. H. Gotlib & C. L. Hammen (Eds.), *Handbook of depression* (pp. 322–339). The Guilford Press.
33. Katsos, N., Roqueta, C. A., Estevan, R. A. C., & Cummins, C. (2011). Are children with Specific Language Impairment competent with the pragmatics and logic of quantification?. *Cognition, 119*(1), 43-57. https://doi.org/10.1016/j.cognition.2010.12.004
34. Ketelaars, M. P., Cuperus, J., Jansonius, K., & Verhoeven, L. (2010). Pragmatic language impairment and associated behavioural problems. *International Journal of Language & Communication Disorders, 45*(2), 204-214. https://doi.org/10.3109/13682820902863090
35. Konu, A., Alanen, E., Lintonen, T., & Rimpelä, M. (2002). Factor structure of the school well-being model. *Health Education Research, 17*(6), 732-742. https://doi.org/10.1093/her/17.6.732
36. Korhonen, M., Luoma, I., Salmelin, R. K., Helminen, M., Kaltiala-Heino, R., & Tamminen, T. (2014). The trajectories of child's internalizing and externalizing problems, social competence and adolescent self-reported problems in a Finnish normal population sample. *School Psychology International, 35*(6), 561-579. https://doi.org/10.1177/0143034314525511
37. Leonard, M. A., Milich, R., & Lorch, E. P. (2011). The role of pragmatic language use in mediating the relation between hyperactivity and inattention and social skills problems. *Journal of Speech, Language, and Hearing Research, 54*(2), 567-579. https://doi.org/10.1044/1092-4388(2010/10-0058)
38. Mackie, L., & Law, J. (2010). Pragmatic language and the child with emotional/ behavioural difficulties (EBD): a pilot study exploring the interaction between behaviour and communication disability. *International Journal of Language & Communication Disorders, 45*(4), 397-410. https://doi.org/10.3109/13682820903105137

39. Maner, J. K., DeWall, C. N., Baumeister, R. F., & Schaller, M. (2007). Does social exclusion motivate interpersonal reconnection? Resolving the" porcupine problem". *Journal of Personality and Social Psychology*, *92*(1), 42-55. https://doi.org/10.1037/0022-3514.92.1.42
40. Milligan, K., Astington, J. W., & Dack, L. A. (2007). Language and theory of mind: Meta-analysis of the relation between language ability and false-belief understanding. *Child development, 78*(2), 622-646. https://doi.org/10.1111/j.1467-8624.2007.01018.x
41. Mok, P. L., Pickles, A., Durkin, K., & Conti-Ramsden, G. (2014). Longitudinal trajectories of peer relations in children with specific language impairment. *Journal of Child Psychology and Psychiatry, 55*(5), 516-527. https://doi.org/10.1111/jcpp.12190
42. Pollard, E. L., & Lee, P. D. (2003). Child well-being: a systematic review of the literature. *Social Indicators Research, 61*(1), 59-78. https://doi.org/10.1023/A:1021284215801
43. Riva, D., Nichelli, F., & Devoti, M. (2000). Developmental aspects of verbal fluency and confrontation naming in children. *Brain and Language, 71*(2), 267-284. https://doi.org/10.1006/brln.1999.2166
44. Rodas, N. V., Eisenhower, A., & Blacher, J. (2017). Structural and pragmatic language in children with ASD: longitudinal impact on anxiety and externalizing behaviors. *Journal of Autism and Developmental Disorders, 47*(11), 3479-3488. https://doi.org/10.1007/s10803-017-3265-3
45. Rotsika, V., Coccossis, M., Vlassopoulos, M., Papaeleftheriou, E., Sakellariou, K., Anagnostopoulos, D. C., ... Skevington, S. (2011). Does the subjective quality of life of children with specific learning disabilities (SpLD) agree with their parents' proxy reports? *Quality of Life Research, 20*(8), 1271-1278. https://doi.org/10.1007/s11136-011-9857-z
46. Scorza, M., Benassi, E., Gennaro, A., Bruganelli, C., & Stella, G. (2018). Psychopathological symptoms in Italian children and adolescents with specific learning disorder: what do mothers and fathers report about?. *BPA-Applied Psychology Bulletin*, *66*(281), 2-14.
47. Scrimin, S., Osler, G., Pozzoli, T., & Moscardino, U. (2018). Early adversities, family support, and child well-being: the moderating role of environmental sensitivity. *Child: Care, Health and Development, 44*(6), 885-891. https://doi.org/10.1111/cch.12596
48. Stella, G., Pizzioli, C., & Tressoldi, P. E. (2000). *PPVT-R: Adattamento italiano e standardizzazione [PPVT-R: Italian adaptation and standardization]*.
49. Sullivan, S., Lewis, G., Wiles, N., Thompson, A., Evans, J., 2015. Psychotic experiences and social functioning: a longitudinal study. *Social Psychiatry and Psychiatric Epidemiology*, 50, 1809-1817. https://doi.org/10.1007/s00127-015-1086-2
50. Sullivan, S. A., Hollen, L., Wren, Y., Thompson, A. D., Lewis, G., & Zammit, S. (2016). A longitudinal investigation of childhood communication ability and adolescent psychotic experiences in a community sample. *Schizophrenia Research, 173*(1-2), 54-61. https://doi.org/10.1016/j.schres.2016.03.005
51. Suraniti, S., Ferri, R., & Neri, V. (2009). *Test for Reception of Grammar version 2 (TROG-2)*.

52. Tager-Flusberg, H. (1999). A psychological approach to understanding the social and language impairments in autism. International review of psychiatry, 11(4), 325-334. https://dx.doi.org/10.1080%2F09540269974203

53. Tahan, M., & Kalantari, M. (2018). The Effectiveness of Social Skills Training on Reducing Autistic Children's Behavioral Problems. *Mediterranean Journal of Clinical Psychology, 6*(1). https://doi.org/10.6092/2282-1619/2018.6.1827

54. Tobia, V., & Marzocchi, G. M. (2015). *QBS 8-13. Questionari per la valutazione del benessere scolastico e identificazione dei fattori di rischio [QBS 8-13. Questionnaires for the evaluation of school well-being and the identification of risk factors]*. Erickson.

55. Tobia, V., Greco, A., Steca, P., & Marzocchi, G. M. (2019). Children's wellbeing at school: a multi-dimensional and multi-informant approach. *Journal of Happiness Studies, 20*(3), 841-861. https://doi.org/10.1007/s10902-018-9974-2

56. Turkstra, L. S., Clark, A., Burgess, S., Hengst, J. A., Wertheimer, J. C., & Paul, D. (2017). Pragmatic communication abilities in children and adults: Implications for rehabilitation professionals. *Disability and rehabilitation, 39*(18), 1872-1885. https://doi.org/10.1080/09638288.2016.1212113

57. Van Agt, H., Verhoeven, L., van den Brink, G., & de Koning, H. (2011). The impact on socio-emotional development and quality of life of language impairment in 8-year-old children. *Developmental Medicine & Child Neurology, 53*(1), 81-88. https://doi.org/10.1111/j.1469-8749.2010.03794.x

58. Varni, J. W., Limbers, C. A., & Burwinkle, T. M. (2007). Parent proxy-report of their children's health-related quality of life: an analysis of 13,878 parents' reliability and validity across age subgroups using the PedsQLTM 4.0 Generic Core Scales. *Health and Quality of Life Outcomes, 5*(2), 2. https://doi.org/10.1186/1477-7525-5-2

59. Westby, C. E., & Cutler, S. K. (1994). Language and ADHD: understanding the bases and treatment of self-regulatory deficits. *Topics in Language Disorders, 14*(4), 58-76. https://doi.org/10.1097/00011363-199408000-00006

60. Wigfield, A., Byrnes, J. P., & Eccles, J. S. (2006). *Development during early and middle adolescence.* In Alexander, P.A., & Winne, H (Eds). Handbook of Educational Psychology, Lawrence Erlbaum Associates Publishers, pp 87-113.

61. Whitehouse, A. J. O., Watt H. J., Line, E. A., and & Bishop, D. V. M., (2009). Adult psychosocial outcomes of children with specific language impairment, pragmatic language impairment and autism. *International Journal of Language and Communication Disorders*, 44, 511--528. https://doi.org/10.1080/13682820802708098

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