Developmental Psychology

Evaluation of Self-Monitoring in Pre-Schools with Different Social Repertories

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Abstract: Difficulties in self-monitoring are potentially related to behavior problems and deficits in social skills. Clarifying these relationships — still little investigated in early childhood — can bring theoretical and practical contributions to child development. This study sought to characterize self-monitoring indicators (self-description, description, and choice of consequences) in preschool children, with different repertoires of social skills and problem behaviors. A total of 53 preschool children (5 – 6 years-old), of both sexes and from public schools were assessed by their parents and teachers on social skills and problem behaviors and completed tasks from an Illustrative Self-Monitoring Resource. The results indicated: (a) better scores for children with social skills in all self-monitoring indicators; (b) positive correlations of indicators with social skills and negative correlations with internalizing problem behaviors. The possible influence of cognitive and verbal development on outcomes, the usefulness of the Illustrative Self-Monitoring resource to identify existing contingencies, and the importance of promoting self-monitoring in early childhood are discussed.

Keywords: social skills, behavior disorders, preschool students

Avaliação de Automonitoria em Pré-Escolares com Diferentes Repertórios Sociais

Resumo: Dificuldades em automonitoria estão potencialmente relacionadas a problemas de comportamento e déficits em habilidades sociais. Esclarecer essas relações, pouco investigadas na primeira infância, pode trazer contribuições teóricas e práticas para o desenvolvimento infantil. Este estudo teve como objetivo caracterizar indicadores de automonitoria (autodescrição, descrição e escolha de consequências) em pré-escolares com diferentes repertórios de habilidades sociais e comportamentos-problema. 53 pré-escolares (5-6 anos), de ambos os sexos e de escolas públicas foram avaliados por seus pais e professores em habilidades sociais e comportamentos-problema e completaram tarefas do Recurso Ilustrativo de Automonitoria. Os resultados indicaram: (a) melhores escores para crianças com habilidades sociais em todos indicadores de automonitoria; (b) correlações positivas dos indicadores com habilidades sociais e negativas com comportamentos-problema internalizantes. Discute-se a possível influência do desenvolvimento cognitivo e verbal sobre os resultados, a utilidade do recurso ilustrativo para identificar contingências em vigor e a importância de promover automonitoria na primeira infância.

Palavras-chave: habilidades sociais, distúrbios do comportamento, pré-escolares

Evaluación del Automonitoreo en Preescolares con Diferentes Repertorios Sociales

Resumen: Las dificultades de automonitoreo están relacionadas con las conductas problemáticas y déficits en las habilidades sociales. Aclarar estas relaciones, poco investigadas en la primera infancia, puede aportar contribuciones teóricas y prácticas al desarrollo infantil. Este estudio tuvo como objetivo caracterizar los indicadores de automonitoreo (autodescripción, descripción y elección de consecuencias) en preescolares, con diferentes repertorios de habilidades sociales y conducta problemática. Cincuenta y tres preescolares (5-6 años), de ambos sexos y que estudiaban en escuelas públicas fueron evaluados por sus padres y maestros respecto a las habilidades sociales y conductas problemáticas, y, además, completaron tareas del Recurso Ilustrativo de Automonitoreo. Los resultados indicaron: (a) mejores puntajes para niños con habilidades sociales en todos los indicadores; (b) correlaciones positivas de indicadores con habilidades sociales y correlaciones negativas con conductas problemáticas internas. Se discute la posible influencia del desarrollo cognitivo y verbal en los resultados, la utilidad del recurso ilustrativo para identificar contingencias existentes y la importancia de promover automonitoreo en la primera infancia.

Palabras clave: habilidades sociales, trastornos de la conducta, preescolares

Behavior problems can be classified into two groups: externalizing and internalizing. According to Crews et al. (2007), externalizing behaviors include those usually expressed in relation to people and things, associated with aggression, rebelliousness, argumentation, impulsivity, and non-obedience; in the second group, an inhibition style predominates, which is expressed mainly in relation

to individuals themselves, associated with social isolation, loneliness, shyness, depression, anxiety, and social phobia. In their study with preschool children, Bolsoni-Silva, Silveira, Cunha, Silva, and Orti (2016) with preschool children found some type of problem behavior in about 80% of them, based on their teachers' evaluation.

Behavior problems compete with or block the acquisition or performance of social skills and can generate deficits in such skills by restricting opportunities for emission and learning of alternative prosocial behaviors, such as sharing, cooperating, and self-control (Gresham, 2018). From the perspective of social skills, the investigation of problem behaviors focuses predominantly on the social behaviors presented and the consequences for the interaction of each type of problem behavior, without disregarding the different perspectives of investigation.

In Cognitive Psychology, for example, under the Social Information Processing model (Crick & Dodge, 1994; Dodge, 2006), problem behaviors are attributed to mental information processing mechanisms, activated in the face of social episodes. In a more current model, these mechanisms would involve: (1) coding of social cues; (2) interpretation of cues; (3) selection of objectives; (4) access or construction of responses; (5) response decision; and (6) response implementation. Due to its cyclical character, the execution of each step can interfere in the following and so forth. Inadequate social behaviors would be the result of some deficit in one of the stages of information processing. In the case of aggressive behaviors, Crick and Dodge (1994) state that these behaviors would be the result of biases in the processing of social cues and information about others' intentions or motives, which would lead individuals to interpret others' intentions in a hostile way, even when ambiguous or neutral.

The findings of a broad and robust set of subsequent studies converge to the initial propositions. According to a review conducted by Vasconcellos, Picon, Prochnow, and Gauer (2006), children and adolescents with an aggressive pattern, in addition to attributing greater hostility to some social signs, presented greater difficulty in generating possible responses and deciding which one to present. In addition to aggressive behaviors, Quiggle, Garber, Panak, and Dodge (1992) found that children with depressive patterns also tended to perceive hostility, but attributed it to internal, stable, and global causes and reported fewer assertive responses, considered with more negative than positive results. In addition to inadequate social behaviors, Mayeux and Cillessen (2003) investigated the influence of sociometric status on social information processing (SIP), finding strong relationships between greater competence in SIP patterns and prosocial behaviors. In the study, more accepted boys proposed more prosocial solutions than those less accepted by peers, and most proposed solutions to dilemmas were prosocial rather than antisocial ones.

With preschoolers, a number of studies on social information processing (Reyna, Ison, & Brussino, 2011; Ziv, Kupermintz, & Aviezer, 2016; Ziv, Umphlet, Olarte, &

Venza, 2018) indicated that: (1) popular boys presented more proposals to solve hypothetical problems than isolated or aggressive boys, not differentiated from each other; (2) the initial solutions were generally considered effective. Additionally, (3) subsequent solutions varied according to statuses, with the isolated and aggressive boys proposing more aggressive and ineffective solutions. These data may suggest that popular children present greater variability of effective solutions than children with problem behavior indicators. With preschoolers considered shy, the results found by Reyna et al. (2011) suggest a positive relationship between performance in social signal coding and social skills. On the other hand, the authors found a negative association between performance in coding emotional signals and internalizing problems.

These studies results, interpreted and based on the Information Processing Model, indicate to the sources of some biases in behavioral processes that would include discrimination of social stimuli, self-observation and self-description of one's own social behaviors, prediction of differentiated consequences for different social behaviors, problem solving repertoire, behavioral variability, among others. This set of behaviors is closely related to the concept of self-monitoring adopted in the field of social skills.

According to A. Del Prette and Z. A. P. Del Prette (2018), self-monitoring can be understood as a skill "(…) by which the person observes, describes, interprets, and regulates their thoughts, feelings, and behaviors in social situations" (p.62, free translation). According to these authors, monitoring one's own performance contributes to social competence, favoring the prediction of reinforcing consequences and other positive results for the individual and their relationship with the social environment.

Considering that self-monitoring is the basis for socially competent performance and that it requires social skills, it is possible to assume that deficits in social skills would also be associated with deficits in self-monitoring. Moreover, when considering that problem behaviors compete with the learning of social skills, it can be assumed that the set of behavioral processes that characterize self-monitoring — a prerequisite skill for other social skills — is also compromised in children with problem behaviors. This hypothesis is supported by empirical findings from other countries, generally conducted and interpreted from the perspective of Information Processing (Mayeux & Cillessen, 2003; Quiggle et al., 1992; Reyna et al., 2011; Smeijers, Benbouriche, & Garofalo, 2020; Ziv et al., 2016, 2018). But there is a lack of studies on this theme in the field of social skills, specifically focusing on the self-monitoring phenomenon.

The characterization of self-monitoring of young children with different social repertoires can bring empirical advances regarding their ontogenetic indicators in childhood, providing subsidies for the planning of evaluations and early interventions of social competence and problem behaviors in childhood. Based on the indicators of self-monitoring in childhood, Dias, Del Prette,

and Del Prette (2018) developed a resource for the evaluation and promotion of self-monitoring that assess some behavior indicators of the phenomenon, supposedly observed in children in preschool age. Despite the challenges to be overcome, the development of procedures and resources seems essential to broaden the understanding of the self-monitoring phenomenon.

Based on this overview, deficits in social skills can result from impairments in self-monitoring and both can be at the basis of problem behaviors. Thus, characterizing ontogenetic aspects of self-monitoring, such as descriptive verbal repertoire and consequence prediction, in children with deficits in the repertoire of social skills or problem behaviors can provide empirically-based clues to answer this theoretical question. Furthermore, the evaluation of self-monitoring produces indicators that could be objects of intervention aimed at promoting self-monitoring in children, which can have an impact on social competence and the reduction of problem behaviors. Given the temporal stability of externalizing and internalizing problem behaviors and the need for prevention of early psychiatric symptoms (Donohue, Tillman, & Luby, 2020), the characterization of the self-monitoring repertoire in children with deficits in social skills and problem behaviors can provide subsidies for more effective interventions.

Based on the rationale previously presented, this study sought to characterize indicators of self-monitoring (self-description, description, and choice of consequences) in preschoolers with different repertoires of social skills and problem behaviors. For this, we investigated (1) similarities and differences in self-monitoring indicators (self-description, description, and choice of consequences) of preschoolers with social skills and those with internalizing and/or externalizing problem behaviors and (2) relationship between self-monitoring indicators, problem behaviors and social skills.

Method

Participants

The sample consisted of 53 children, between five and six years old, of both sexes, from municipal public schools in a small city in the state of São Paulo. These children were selected from 108 previously indicated by teachers because they had characteristics of interest in the study (more aggressive/disobedient patterns, more isolated/shy and more sociable). They were evaluated by mothers and teachers with the Preschool and Kindergarten Behavior Scales - PKBS-BR (Merrell, 2002, with preliminary validation in Brazil by Dias, Freitas, Del Prette, & Del Prette, 2011).

Initially, 56 children who met the inclusion criteria were organized into three groups based on the combination of social skills (HS) and problem behaviors (CP) scores by the PKBS-BR. The groups were named as: (1) high social skills (CHS), with high score on the HS scale and low score of internalizing problem behaviors (CPI) and externalizing problem behaviors (CPE); (2) internalizing problem behaviors and/or deficits in social skills (CPIDHS), with high score on the indicator of internalizing problem behaviors and low scores on the HS scale and in the indicator of externalizing problem behaviors; (3) externalizing or mixed problem behaviors (CPEM), with high score in externalizing behaviors and low HS score, regardless of the scores on the CPI subscale. As an exclusion criterion, three children with a score below the 25th percentile in the *Raven's Progressive Matrices Intelligence Test* (Angelini, Alves, Custos, Duarte, & Duarte, 1999) were eliminated, two belonging to the CPEM group and one belonging to the CPIDHS group. Table 1 presents the sociodemographic characterization of each group and the total sample (sex, age, and socioeconomic level) considering the absolute and relative frequency of children in each group after applying the inclusion and exclusion criteria adopted in their composition.

Table 1

Sociodemographic characterization of the groups of CHS, CPIDHS and CPEM children in terms of absolute frequency (AF) and relative frequency (RF) at each level of the variables evaluated

Characteristic	Group	CHS		CPIDHS		CPEM		Total Sample	
		AF	RF	AF	RF	AF	RF	AF	RF
Sex	Female	12	57	10	59	1	7	23	43
	Male	9	43	7	41	14	93	30	57
Age	5 years	8	38	7	41	6	40	21	40
	6 years	13	62	10	59	9	60	32	60
Socioeconomic Level	A2	4	19	-	-	-	-	4	7.5
	B1	3	14	1	6	-	-	4	7.5
	B2	8	38	3	18	2	13	13	24.5
	C	4	19	11	65	8	53	23	43
	D	-	-	1	6	4	27	5	9
	NR	2	10	1	6	1	7	4	7.5

Note. Caption: CHS = high social skills; CPIDHS = internalizing problem behaviors and/or deficits in social skills; CPEM = externalizing or mixed problem behaviors.

In terms of sample characterization, statistical analyses showed that there was no statistically significant association between age and groups ($X^2 = 0.161$; $p = 0.922$). However, a significant association between groups and sex was observed ($X^2 = 12.90$; $p = 0.002$), with more boys in the CPEM group (93%), as well as between groups and socioeconomic level ($X^2 = 22.50$; $p = 0.004$), with a higher concentration of children in the most-favored class for the CHS group and in the least-favored class (Class C) for children with problem behaviors.

Instruments

Preschool and Kindergarten Behavior Scales (PKBS-BR).

Originally produced in the USA - *School Social Behavior Scales-2* (Merrell, 2002) and translated into the Brazilian context, the PKBS-BR is presented in the same version for parents and teachers, containing 34 items of social skills and 42 items of problem behaviors. Items are evaluated on a *Likert*-type scale with frequency ranging from zero (never) to three (often). In Brazil, the preliminary validation study (Dias et al., 2011) showed satisfactory psychometric properties regarding the internal consistency of the total scale of social skills (0.92) and problem behaviors (0.95), considering the version of parents and teachers. In the sample of the present study, the internal consistency was 0.96 for social skills and 0.95 for problem behaviors. This scale was adopted in this research for the selection of participants and their allocation in different groups, considering their social repertoire and also for correlation analysis.

Illustrative Self-Monitoring Resource for Evaluation (RIA-A) - computerized version

Software developed by Dias et al. (2018), composed of 12 sets of colorful drawings depicting interactions of children with other children or adults, involving skills of cooperation and empathy, assertiveness, making friends and academics. For each of the sets three alternatives of answers are presented (one skillful and two unskilled, aggressive and passive) and their probable consequence. The respondent is asked to answer standardized questions related to the illustrations and their answers allow to measure the following indicators: *Self-description* (report on what you usually do in the face of the situation if you were in the character's place), *Description of the consequence* (report on what is illustrated in the sequence of each of the character's answers) *and choice of consequence* (indication of the most likely consequence, among three presented for each response of the character skillful, aggressive and passive). A preliminary analysis of the sample of 53 children evaluated by the RIA-A in the present study showed satisfactory psychometric properties regarding the internal consistency of the indicators of self-description ($\alpha = 0.72$), description of consequence ($\alpha = 0.90$) and choice of consequences ($\alpha = 0.75$).

In addition to *software*, the RIA-A is accompanied by: an application guide, which specifies the standardized procedures for using the RIA-A and ways of interacting with the child; a manual for correcting the responses of the RIA-A, which consists of procedures and criteria for measuring the score of the open responses provided by children in the indicators *Self-description* and *Description of consequences* which can be evaluated from 0 to 2; a protocol for recording children's responses, containing forms for recording the responses of the children in each of the RIA-A situations (to be completed by the applicator during the evaluation sessions). For the computerized use of the RIA-A, it was necessary to employ a laptop computer.

During ata collection, as a way of stimulating the performance of the tasks, playful materials (games and various toys) were also used, delivered to the child at the end of each evaluation or intervention session, regardless of their performance in the proposed tasks.

Procedure

Data collection. The study was conducted in municipal schools of Early Childhood Education of a small inland municipality in the state of São Paulo. After authorization by the principals and acceptance by the teachers, they indicated the name of their students who most presented one of the following sets of characteristics: (1) shy, who cried and lot and were isolated; (2) aggressive and disobedient or (3) friendly and sociable. The parents of the previously indicated children were contacted and, after acceptance, individually completed the PKBS-BR form of their children. After this phase, the teachers individually completed the PKBS-BR form on each of their students. The collection with the parents and teachers was carried out in rooms available in the schools where the children were enrolled and in the presence of the researcher, who provided instructions and clarifications.

After the adaptation period with the researcher, each child selected, based on the evaluation of the PKBS-BR, participated individually, on average, in three to four sessions of about 10 minutes each for self-monitoring evaluation following the application guide of the computerized RIA-A. The children's responses were manually recorded by the researcher in the *Protocol for recording children's responses*. No type of feedback was given on the performance of the children in the tasks, but the researchers sought to maintain the level of involvement and attention of the child with the activity with the use of tokens that, at the end, were exchanged for a gift of their preference.

Data analysis. The data obtained with the PKBS were entered in a spreadsheet of the statistical program *Social Package for Social Science* (SPSS, version 17.0) with tabulation of scores of social skills and problem behaviors. These data were used for the selection and allocation of participants in the groups and for the analysis of correlations with the scores obtained in the self-monitoring tasks evaluated by the RIA-A.

The responses obtained through the application of RIA-A were tabulated according to the *RIA-A Verbal Response Corrections Manual*. The open responses of *Self-description* and *Description of consequences* were scored in: (2) Totally correct; (1) Partially correct and (0) Wrong; in *Choice of consequence,* they were scored at 1 for correct answers and 0 for errors in each response option of the character, whose sum generated a score in this indicator. The sum of the scores of the three indicators resulted in the overall self-monitoring score.

Considering that the distribution of the sample did not meet the criteria of normality and homogeneity and given the very differentiated score of the participants by group, non-parametric statistical tests were used; Kruskal-Wallis for independent samples, with the *post hoc* multiple comparisons Dunn test and Spearman's correlation in the scores on self-monitoring indicators and the scores of social skills and internalizing and externalizing problem behaviors. The level of significance adopted was $p < 0.05$ and in the analysis by post hoc Dunn test, the exact values of p were not presented because the statistical package used for this test (*Stat*) does not provide such values.

Ethical Considerations

This study was submitted and approved by the Research Ethics Committee of the Universidade Federal de São Carlos (CAAE 0959.0.000.135 - 10-CEP/ UFSCar process no. 225/2010). All norms of research with human beings were met. After authorization from the school principals, contact was made with the teachers of the classrooms that had children, aged 5–6 years who were invited to participate, by signing the informed consent form.

Results

Figure 1 presents the data obtained, respectively, in the indicators General score of self-monitoring (sum of the three indicators evaluated), self-description, choice of consequences and description of consequences and for the three study groups CHS, CPIDHS and CPEM. In the X-axis, the groups are specified and, in the Y-axis, the variation of the correct scores.
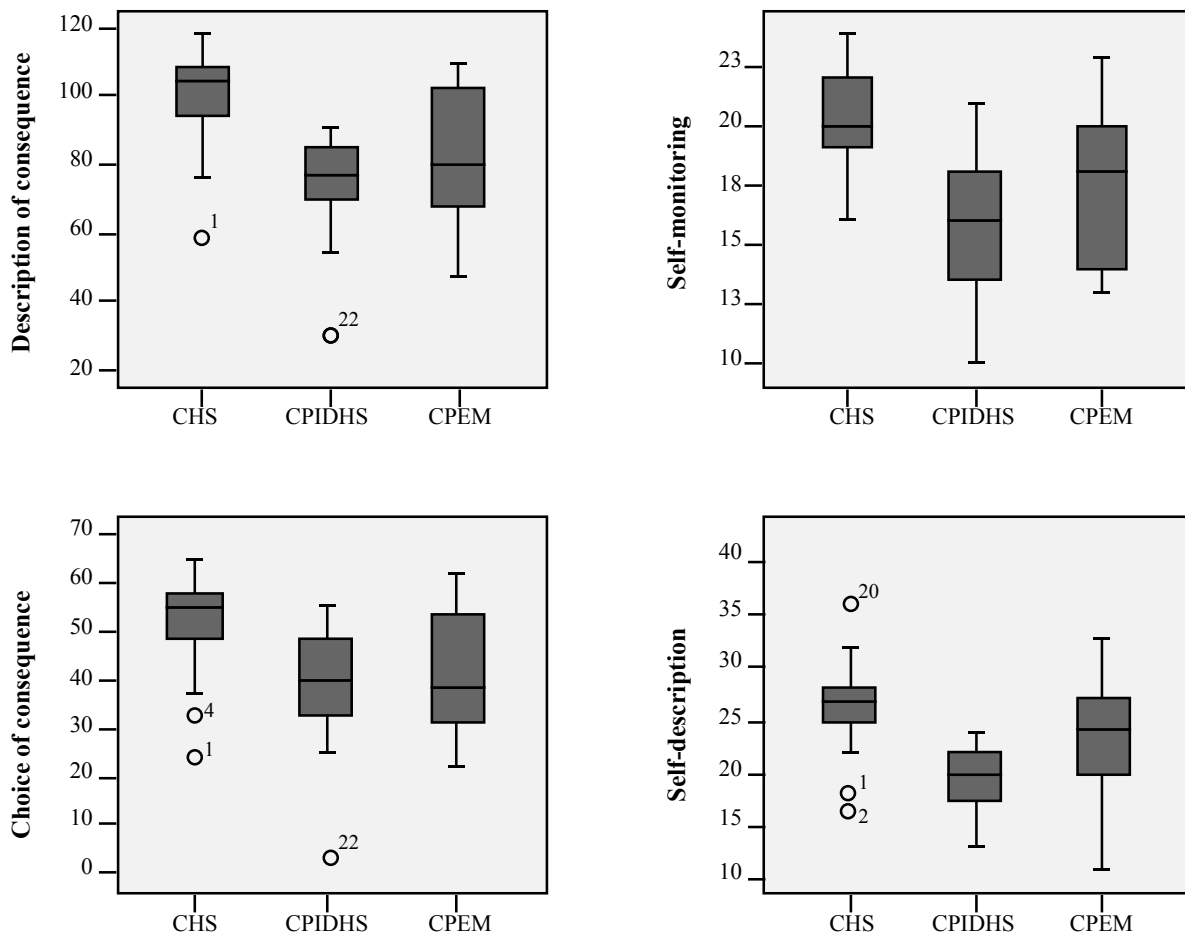

Figure 1. Descriptive comparison (*box plot*) of the scores in the indicators of self-monitoring, self-description, choice of consequence, description of consequence obtained by children. *Note*. Caption: CHS = high social skills; CPIDHS = internalizing problem behaviors and/or deficits in social skills; CPEM = externalizing or mixed problem behaviors.

In the general self-monitoring scores, significant differences were observed between the groups ($p < 0.0005$), with the scores of the CHS group being significantly higher than those of the CPIDHS groups ($p < 0.001$) and CPEM ($p < 0.05$), which were similar to each other. In the CPEM group, there was high variability among children, while in the others there was greater homogeneity.

Differences were also observed between the groups for the indicators of *Self-description* ($p = 0.0003$), *Description of consequences* ($p = 0.0031$) and *Choice of consequences* ($p = 0.0002$). On the indicator of *Self-description*, the scores were higher for the CHS group than for the CPIDHS groups ($p < 0.001$) and CPEM ($p < 0.05$), with no differences between groups with problem behaviors. These differences and similarities remained in the indicator *Description of consequences*, with the CHS group having scores significantly higher than the CPIDHS group ($p < 0.01$) and CPEM ($p < 0.05$) with no differences between groups with problem behaviors. Finally, on the indicator of *Choice of consequences*, the CHS group presented statistically higher means than the CPIDHS group ($p < 0.001$). Table 2 shows the correlations between the scores of social skills, externalizing and internalizing problem behaviors based on the evaluation of mothers and teachers through the PKBS-BR and the scores of correct choice of consequences, quality of self-description, and description of consequences obtained via the RIA-A with children.

Table 2

Spearman correlations between self-monitoring indicators (self-description, choice and description of consequence and self-monitoring) and social skills (HS), internalizing problem behaviors (CPI) and externalizing problem behaviors (CPE) scores

Indicator	HS parents	HS teachers	CPE parents	CPE teachers	CPI parents	CPI teachers
Self-description	0.43**	0.43***	− 0.15	− 0.19	− 0.39**	− 0.37**
	.002	.001	.291	.172	.004	.006
Choice of consequence	0.43***	0.32*	0.06	− 0.02	− 0.31*	− 0.29*
	.001	.013	.650	.900	.020	.024
Description of Consequence	0.39**	0.36**	− 0.18	− 0.19	− 0.42**	− 0.37**
	.004	.008	.202	.165	.002	.007
Self-monitoring	0.48***	0.43***	− 0.18	− 0.20	− 0.47***	− 0.43***
	.000	.001	.211	.147	.000	.001
Sample n	52	53	52	53	52	53

Note. $*p < 0.05$; $**p < 0.01$; $***p < 0.001$.

The results indicated a positive and significant correlation in the social skills scores of the assessment of parents (moderate) and teachers (low or moderate) with all self-monitoring indicators and with the overall self-monitoring score. This indicates that the higher the score of children's social skills, from the perspective of the evaluators, the better their performance in the other self-monitoring indicators. On the other hand, a significant negative correlation was found between the scores of internalizing problem behaviors and the performance of children in the indicators of *Self-description* and *Choice of consequences* (low), in addition to the indicators of *Description of consequences* and general self-monitoring score (moderate), showing that children with internalizing problem behaviors, as assessed by parents and teachers, have worse self-monitoring performance. This was not verified for externalizing problem behaviors.

Discussion

The results obtained in this study showed differences between the groups of children in all self-monitoring indicators evaluated, in the direction of the initial hypothesis that children with better social repertoire would also perform better in the tasks of self-describing behaviors and predicting consequences, whereas children with indicators of problem behaviors would perform worse. These results are consistent with the association between positive sociometric status (indicator of social skills) and better performances in social information processing tasks, while worse performance occurred with aggressive, depressive, or shy children (Mayeux & Cillessen, 2003; Quiggle et al., 1992; Reyna et al., 2011; Ziv et al., 2016, 2018). The moderate relationship between self-monitoring and children's social repertoire also meets the results of Reyna et al. (2011) which, for the indicator *recognition of social signals,* observed a positive correlation with social skills and a negative correlation for internalizing problem behaviors.

Possibly, not only the characteristics of child socialization, but also other variables (for example, cognitive and verbal development) may have influenced the performance of children in self-monitoring tasks. Regarding cognitive development, there is evidence of correlation between low academic performance or learning difficulties and lower cognitive levels and deficits in social skills (Garrote, 2017).

Future studies should investigate the influence of cognitive development on children's performance specifically in self-monitoring tasks.

As for verbal development, less expressiveness and greater social withdrawal or shyness, characteristic of internalizing behavior patterns, are closely associated with less verbal expression of thoughts and feelings. This may have interfered with the performance of the children of the internalizing group in the indicators of self-description and description of consequences, so that the most impaired performance of this group in these tasks could have occurred due to their difficulty in expressing themselves and not necessarily in assessing their own behavior and its possible consequences. However, even in the non-verbal task of choosing consequences (clicking on the correct consequence), children with internalizing problem behaviors had lower scores, which signals the need for a more accurate investigation of these relationships.

Regarding the higher frequency of errors in the task of choosing consequences of children from groups with problem behaviors, these can be related not only to difficulties in predicting consequences, but also to failures of stimulation in the natural environment, for example, regarding positive consequences of inadequate responses and, simultaneously, punishment for socially competent behaviors.

These data suggest early prevention prospects that could be made possible by evaluating self-monitoring indicators such as those predicted in RIA-A (Dias et al., 2018), for example, the ability to predict consequences, which provides clues about the child's ability, but also about the child's social environment. The use of this instrument could assist therapists, teachers, and parents in identifying the contingencies and rules present in the child's social environment, an essential information to plan changes in the environmental conditions of learning, in particular, a more adequate consequence to behaviors that contribute to the development of desirable repertoire in children.

Regarding the quality of the open responses presented by the children, the results of the study by Quiggle et al. (1992) demonstrated that children with depressive symptoms tend to attribute negative outcomes to assertive behaviors. Based on the results of the present study, it is relevant to investigate possible differences regarding the types of misconceptions of children in the description of consequences, comparing the groups with a good repertoire of social skills and without problem behaviors and those that present internalizing and externalizing problem behaviors.

Another future direction of research, also with the application of RIA-A, could be the evaluation of the influence of parents' educational social skills on children's self-monitoring performance. Since self-monitoring is learned in social interactions, it can be assumed that parents with better educational social skills would positively influence the children's self-monitoring repertoire, stimulating the performance of describing interactive behaviors as well as antecedents and consequences for children's behaviors, assessing the adequacy of behavior

according to the consequences, etc. Some studies in the area of Information Processing have sought to investigate the relationship between quality of parental practices on children's information processing patterns (Arbel, Sofri, Elizarov, & Ziv, 2021; Ziv et al., 2016) and could inspire self-monitoring studies guided by the reference of social skills and social competence.

In addition to the empirical results obtained, this study also brings methodological contributions to the field of social skills when testing a method of evaluating self-monitoring components in young children. There are many challenges in the investigation of the phenomenon of self-monitoring and this study presents a possibility of overcoming some of them by applying an evaluation resource and developing an evaluation and analysis procedure, generating data that allow identifying if some indicators of the phenomenon would be present already in childhood.

Despite the contributions of the study, it is necessary to recognize its limitations. The alternative procedure adopted is an approximation of evaluation of the phenomenon, since it does not properly evaluate the process of self-monitoring, but fragments or components of the phenomenon even if immediately after its occurrence. It is also recognized that the limited sample size compromises a broader generalization of the results, which could be corrected in future studies.

The results obtained from the procedures tested in this study showed that self-monitoring indicators such as self-description, description of consequences and choice of consequences varied according to the type of social pattern presented by preschool children. Furthermore, in the study, positive correlations were obtained between self-monitoring indicators in young children with social skills scores and negative ones with internalizing problem behaviors scores.

In terms of practical implications, when verifying a direct relationship between different social patterns and self-monitoring, the findings of this study indicate possibilities for planning interventions directed exclusively to the repertoire of self-monitoring and evaluation of its impact on the promotion of social skills, reduction of problem behaviors and social competence. Since social competence has favorable outcomes for child development, these interventions could contribute to the prevention of psychological disorders in the child population, reducing social, educational, and financial costs of such problems in subsequent stages (Domitrovich, Durlak, Staley, & Weissberg, 2017).

Finally, we highlight the methodological contribution of this work with the use of a multimedia resource, the RIA-A, for the evaluation of behavioral and ontogenetic indicators of self-monitoring, evidencing its viability with the preschool population. From the use of this resource, future studies could even follow how the evolution of self-monitoring occurs over time and how it relates to the variables social skills and problem behaviors, as children develop. Thus, it would be possible to verify if the findings of this study are maintained or if they are specific to this developmental phase, as raised by Muchiut, Dri, Vaccaro

and Pietto (2020) when investigating possible relationships between emotions, behavior social skills and executive functions in preschool children.

Testing this feature signals possibilities for procedure refinement, variable control, and other types of analyses and uses that could be implemented. It stands out as a possible additional function of the RIA-A the identification of contingencies in force in the children's socialization environment, since the description of the consequences for children's social behaviors can indicate possible positive or negative educational practices of consequentiation of children's social responses by their signifiers.

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