Emotional and meta-emotional intelligence as predictors of adjustment problems in students with Specific Learning Disorders

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The purpose of this study was to analyse adjustment problems in a group of adolescents with a Specific Learning Disorder (SLD), examining to what extent they depend on the severity level of the learning disorder and/or on the individual's level of emotional intelligence. Adjustment problems,, perceived severity levels of SLD, and emotional and meta-emotional intelligence were examined in 34 adolescents with SLD. Results demonstrated that emotional beliefs, emotional self-concept and emotional intelligence are very important factors in the psychological adjustment of adolescents with SLD. These results provide evidence for the importance of considering meta-emotional intelligence in both diagnostic and intervention protocols, as well as in the inclusive education of students with SLD.

Keywords: adjustment problems, emotional intelligence, meta-emotional intelligence, specific learning disorder, inclusion

Introduction

Diversity and social inclusion are two highly topical themes in schools. School cannot be considered only as a learning place, since it is the context where first peer comparison takes place, and where children and adolescents have their first experiences of academic success and failure. These experiences contribute to personality and self-concept development. For this purpose, the situations of students presenting learning difficulties have to be managed optimally in order to avoid potential psychological problems and dropout from school, amongst others. One of the challenges facing schools in this respect is the inclusion of children with special educational needs, including those with specific learning disorder (hereafter SLD), the focus of this paper.

Inclusion of students with specific learning disorders

SLDs are described as neurodevelopmental disorders with a biological origin. People with SLD have a normal level of intellectual functioning and difficulties in one or more specific learning domains, such as reading, written expression, and mathematics (Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition, APA, 2013). The onset of SLD appears during the years of formal education, and the performance of affected academic skills is below average for age; this condition persists throughout the person's life.

In view of their extreme specificity of their learning difficulties, students with SLD may suffer even more than other children with special needs during the school years. There are many cases in which the diagnosis is not recognized, or is made only after a long period of academic failure. This occurs because despite their great difficulties in reading, writing and maths, they are not visibly "different" from their classmates and their disability is not immediately evident. Despite the number of studies of, and research on, individuals with SLD, some people still tend to consider their academic failure as the result of low motivation and commitment. The rigid assumption of these interpretations has a negative impact on the inclusion process, which should take into account all cognitive, emotional, pedagogical and social aspects of learning and education.

The literature on students with SLD has concentrated more on cognitive factors (memory, attention) and didactic or intervention approaches than on affective factors. Even the DSM 5, in defining the severity level of the observed disorder, suggests considering only the capability of task completion and support needed, with no attention to the individual's abilities to cope with demanding learning situations, or to personal and socio-emotional adjustment. Similarly, norms for the inclusion of students with SLD, at least in Italy (Law 170/2010), are more concentrated on didactic strategies for learning (i.e., compensatory tools or dispensatory methods), and less on the improvement of social or emotional learning to prevent adjustment problems.

Adjustment problems of students with specific learning disorders

Despite their learning difficulties, some people with SLD, lead a normal healthy life and achieve important personal and professional goals. This is demonstrated by the well-known list of people with SLD who have become very well known in various fields of art, literature and science (e.g., Albert Einstein, Steven Spielberg, Leonardo Da Vinci). However, there are also many people with SLD who may be overwhelmed by their difficulties and develop symptoms of adjustment problems. Various studies of adolescents with SLD have described the presence of emotional and social difficulties that can have a negative impact on their adaptation and development (Daniel, Walsh, Goldston, Arnold, Reboussin, & Wood, 2006; Kiuru Leskinen, Nurmi, Salmela-Aro, 2011). Furthermore, students with learning difficulties are also at risk of educational drop out (Korhonen, Linnanmäki & Aunio, 2014).

Adjustment problems, academic success and emotional intelligence

Various research studies have demonstrated that both adjustment and academic success may be influenced by emotional intelligence. Emotional intelligence (hereafter EI) has been defined in different ways. In the Mayer and Salovey Ability-EI model (Mayer & Salovey, 1997), EI is described as the capacity both to reason about

emotions and to use them to enhance thinking and problem-solving. Mayer and Salovey recommend measuring EI, like any other form of intelligence, by using performance tests. For this reason, they created the Mayer, Salovey and Caruso Emotional Intelligence Test (MSCEIT, Mayer, Salovey, & Caruso, 2002), which requires individuals to solve eight different tasks involving the perception, use, understanding and management of emotions. On the other hand, in trait or mixed EI models, proposed by authors such as Bar-On (1997), Goleman (1995) and Petrides and Furnham (2001), EI is described as a mix of abilities, competencies and personality traits. Assessment of trait or mixed EI, is usually based on self-report questionnaires.

Various studies have documented an association between both low ability-EI and trait-EI with adjustment problems. Rivers, Brackett, Reyes, Mayer, Caruso, and Salovey (2012) found that internalizing problems were negatively related to ability-EI, indicating that adolescents with high EI rated themselves as less anxious and depressed. The ability-EI of understanding and managing emotions moderated suicide attempts in adolescents who had been victims of abuse in childhood (Cha & Nock, 2009). Palomera, Salguero, and Ruiz-Aranda (2012) found evidence that higher emotional perception abilities correspond to a lower sense of inadequacy, fewer adjustment problems and lower emotional problems. Other interesting studies showed negative correlations among trait-EI and depression, somatic symptoms, loneliness and burnout, using the Bar-On (1997) or other self-report measures (Ciarrochi, Chan, & Bajgar, 2001; Fernández-Berrocal, Alcaide, Extremera, & Pizarro, 2006; Parker, Taylor, & Bagby, 2001). A recent systematic review of 28 studies conducted by Resurrección, Salguero and Ruiz-Aranda (2014) showed that EI assessed by self-reports had stronger associations with psychological adjustment problems than did EI assessed by tests of maximum performance.

Ability and trait-EI are also associated with academic success, and numerous studies have demonstrated that a higher level of ability-EI is associated with higher academic achievement (Di Fabio & Palazzeschi, 2009; Gil-Olarte, Palomera, & Brackett, 2006). Results for trait-EI are less consistent but definitely not negligible. For example, Newsome, Day, and Catano (2000) found no significant relationship between academic success and self-reported EI, whereas Petrides, Frederickson, and Furnham, (2004) found that high self-reported EI in adolescents was associated with high academic achievement.

In summary, the literature shows that emotional intelligence is inversely associated with adjustment problems and positively associated with learning and academic success. Based on the literature cited so far, it seems logical to hypothesize that the adjustment problems of students with SLD may depend on poor emotional intelligence, and not only on the severity of their difficulties in task completion or the amount of support needed. For these reasons, our research aims at analyzing symptoms of adjustment problems in a group of adolescents with SLD, examining to what extent such symptoms depend on the severity levels of the individuals' learning disorders and/or on their levels of emotional intelligence.

Method

Participants.

Thirty-four Italian adolescents (27 males and 7 females) with a diagnosis of specific learning disorder participated in the study. They were between 14 and 19 years of age (mean age: 16). Their parents were also requested to participate, though only 31 of them (24 mothers and 7 fathers) completed the assigned

questionnaires. The unbalanced gender distribution in the sample reflects the epidemiology of SLD, which is more frequently observed in males than in females (with a proportion ranging from 4:2 to 6:1; see Quinn & Wagner, 2013).

For all participants, the diagnosis of specific learning disorder was issued by the Italian health system or reported by specialized professionals. All participants matched the DSM-IV diagnostic criteria for SLD, in that they achieved a total score in verbal and/or non-verbal cognitive tests above 85, but had specific and persistent difficulties in reading, writing or mathematics that were not due to sociocultural factors or to other types of disability. Participants were contacted through the schools the students attended. Consent forms were completed by both parents and students before the start of data collection.

Measures.

Adjustment problems. Adolescent adjustment was measured using the Italian version of the Achenbach System of Empirically Based Assessment (ASEBA, Achenbach & Rescorla, 2001), a widely used instrument that has shown good test-retest reliability, internal consistency, and criteria, construct and content validity. Specifically, we used the Youth Self-Report 11–18 (YSR, 102 items), completed by adolescents, and the Child Behaviour Checklist 6–18 (CBCL, 118 items), completed by parents. Both the YSR and CBCL comprise a series of questions about individuals or one's own children (i.e., "I feel he/she has to be perfect" or "I feel that no one loves me"), and respondents have to answer by choosing between three alternatives.. It is possible to compute three different scores for both the YSR and CBCL, namely internalizing behaviour problems (anxious/depressed, withdrawn/depressed and somatic complaints), respectively labelled as YSR-Int and CBCL-Int; externalizing behaviour problems, such as rule-breaking behaviour and aggressive behaviour, labelled as YSR-Ext and CBCL-Ext; and total behaviour problems (anxious/depressed, withdrawn/depressed, somatic complaints, social problems, thought problems, attention problems, rule-breaking behaviour and aggressive behaviour), labelled as YSR-Tot and CBCL-Tot.

Perceived severity levels of SLD. Since we were interested in psychological aspects of SLD, rather than measuring the objective levels of abilities in reading, writing and mathematics, we measured the perceived severity level of SLD using the LPG-Self and LPG-Other questionnaires (D'Amico & Guastaferro, 2016). The LPG-Self is a self-report questionnaire for people with SLD; LPG-Other is the corresponding questionnaire for external evaluation by parents, teachers or other tutors of people with SLD. Both questionnaires are composed of 27 items: eight items for reading, eleven items for written expression and eight items for mathematics. Questions include for example: "I'm slow in reading". In the LPG-Other version, questions are simply presented in the third person, e.g., "He/she is slow in reading aloud". Thus, high scores correspond to high difficulties and higher severity levels of SLD. The questionnaire makes it possible to obtain three single scores for reading, writing and mathematics. The total score corresponds to the mean of the single reading, writing and mathematics scores. Thresholds for each severity level perceived were established as follows: mild level = scores between 1 and 2.5; moderate level = scores between 2.51 and 3.5; severe level = scores between 3.51 and 4. Scores lower than 1 are considered as reflecting an absence of difficulties.

Internal consistency of the LPG questionnaires was assessed by computing Cronbach's alpha for the total score and for each subscale. For LPG-Self, all alphas were in the "good" range, as follows: total score = 0.87, reading = 0.83, written expression = 0.86 and mathematics = 0.89. For LPG-Other, Cronbach's alphas were: total score = 0.86, reading = 0.92, written expression = 0.92 and mathematics = 0.95.

Emotional and meta-emotional intelligence. Both performance and self-report emotional intelligence of participants was measured by the multi-method tool Intelligenza Emotiva: Abilità, Credenze e Concetto di Sé Meta-Emotivo (IE-ACCME, D'Amico, 2013), which is designed to measure emotional intelligence and other metacognitive variables related to emotions. The IE-ACCME test includes three different scales, namely a questionnaire on beliefs about emotions (CE); a self-report scale of self-concept about emotional abilities (CME); and a performance test of emotional abilities (AE). The AE test also includes the self-evaluation of performance (AP, which was not used in this study) and the management-DO section.

All IE-ACCME scales explore the emotional dimensions described in Mayer and Salovey's (1997) four-branch theoretical model, that is, perception of emotions (faces and pictures); facilitation of emotions in cognitive processes (use and sensations); understanding of emotions (blends and transformations); and management of emotions (personal management and interpersonal management). The questionnaire on beliefs about emotions (CE) includes 16 items that explore individuals' beliefs about emotions in everyday life (e.g., "Only positive emotions help to cope with life".) The scale of self-concept about emotional abilities (CME) includes 20 items asking subjects to evaluate their own emotional skills (e.g., "I am able to identify the emotions that derive from particular physical sensations"). For both CE and CME scales, individuals respond on a five-point Likert scale ranging from "not true" to "definitely true".

The test of emotional abilities (AE) is a maximum performance test inspired by the MSCEIT (Mayer et al., 2002) that explores the emotional abilities of adolescents through eight tasks. The AE scale uses the consensus score methodology. People are requested to solve specific emotional problems and the score of each answer is proportional to the number of times that each answer was chosen by people in a standardized (or general consensus) sample, here composed of 1,084 adolescents (526 males and 558 females, between 10 and 19 years of age), from across Italy (D'Amico, 2013). Thus, adolescents who obtain higher scores on the AE scale are those whose answers are generally similar to those in the standardized sample. Validation studies performed on the Italian population confirmed that the CE, CME and AE scales reflect Mayer and Salovey's (1997) four-branch structural model. However, only the AE scale is considered as a measure of emotional intelligence from the ability-EI perspective.

The AE test also comprises a management-DO section, where respondents are presented with the same items used for the management section, but rather than asking them "Which is the best strategy in order to…?" they are asked "Which is the strategy you usually adopt in order to…?" The management-DO section allows two scores to be obtained. The first (G-FAI/g) represents the correspondence/discrepancy between the behaviours usually adopted by respondents and the behaviours that 'should be' adopted according to the general consensus sample; the second (G-FAI) refers to the correspondence between the behaviours usually adopted by respondents and the behaviours usually adopted by the general consensus sample.

Statistical analyses

The YSR and CBCL raw scores were first transformed into T-scores, and IE-ACCME raw scores into standard scores (for LPG-Self and Others, mean raw scores were used). All variables were then subjected to descriptive analysis to examine the level of perceived adjustment, the perceived severity levels of SLD and meta-emotional intelligence. Correlations and T-test analyses were performed on each self- and other- paired score of adjustment and perceived SLD severity level to examine the relationship between adolescents' and parents' evaluations of each variable considered. Correlation analyses were also performed to examine associations among all variables. Finally, linear regression models were built to identify the best predictors of adjustment problems.

Results

Adjustment problems

Table I provides the descriptive analysis of the all the variables examined in the study. Analysis of the YSR T-scores, revealed that on the internalizing scale (YSR-Int), 15 adolescents were within the normal range, 7 within the borderline, and 12 within the clinical range; on the externalizing scale (YSR-Ext), 25 adolescents were within the normal range, 4 within the borderline and 5 within the clinical range. On total scores (YSR-Tot), 19 adolescents were within the normal range, 5 within the borderline and 8 within the clinical range. Paired correlations and t-tests of adolescents' and parents' reports demonstrated that there was no correspondence between the evaluations, with parents reporting generally lower scores than their children. Internalizing problems scores were not correlated, and the adolescents reported higher scores than their parents, even though the mean difference did not reach statistical significance (YSR-Int/CBCL-Int, $r = .14$, $p >.05$; $t = 1.53$, $p > .05$). In externalizing problems (YSR-Ext/CBCL-Ext, $r = .26$, $p >.05$; $t = 3.67$, $p <001$) and total score (YSR-Tot/CBCL-Tot, $r = .04$, $p >.05$; $t = 2.72$, $p <01$), paired scores were not correlated and mean differences were statistically significant, with adolescents reporting higher scores than their parents.

Perceived severity levels of SLD

The analysis of LPG-DSA-Self scores showed that all participants reported mild to severe levels of SLD (according to the established thresholds) in one or more learning areas. Specifically, 8 participants reported mild levels and 12 moderate levels of difficulties in reading; 19 adolescents reported mild levels, 9 moderate levels and 2 severe levels of difficulties in writing; and 18 adolescents reported mild levels and 8 moderate levels of difficulties in mathematics. Four adolescents reported difficulties in one learning area, 7 in two learning areas, and the remaining 23 in all three learning areas.

There were positive correlations and no mean differences between LPG-DSA scores of adolescents and their parents in reading ($r = .75$, $p < .001$; $t =.34$, $p > .05$), writing ($r = .50$, $p < .005$; $t = .83$, $p > .05$) and total score ($r = .63$, $p < .001$; $t = .509$, $p > .05$). Self and Other scores in mathematics were correlated, but means were significantly different ($r = .50$, $p < .005$; $t = 2.21$ $p < .05$). Thus, adolescents and their parents were highly consistent in describing the perceived types and severity levels of SLD in reading, writing and total score, whereas parents in general underestimated the difficulties perceived by their children in mathematics.

Table I. Descriptive statistics for adjustment (t-scores), perceived severity levels of SLD (raw scores) and IE-ACCME test results (z-scores).

		N	MIN	Max	M	SD	SK	KUR
Adjustment problems self-reported by adolescents (YSR)	Internalizing problems (YSR-INT)	34	44	78	60.18	9.020	-.002	-.999
	Externalizing problems (YSR-EXT)	34	37	70	54.85	8.147	-.226	-.266
	Total adjustment problems (YSR-TOT)	34	44	74	57.18	8.376	.120	-1.083
Adjustment problems reported by parents/others (CBCL)	Internalizing problems (CBCL-INT)	31	34	69	57.26	8.473	-.855	.777
	Externalizing problems (CBCL-EXT)	31	34	61	49.68	6.363	-.893	.930
	Total adjustment problems (CBCL-TOT)	31	43	64	52.84	5.132	-.079	-.376
Perceived severity levels of SLD self-reported by adolescents (LPG-self)	Reading (LPG-s-L)	34	.1	3.5	2.056	.8992	-.419	-.388
	Writing (LPG-s-S)	34	.3	3.9	1.941	.9215	.291	-.734
	Maths (LPG-s-M)	34	.3	3.2	1.715	.8136	.257	-.984
	Total score (LPG-s-Tot)	34	.5	3.3	2.735	.7075	-.072	-.679
Perceived severity levels of SLD reported by parents/others (LPG-other)	Reading (LPG-o-L)	31	.1	3.9	1.835	.9817	-.376	-.506
	Writing (LPG-o-S)	31	.6	3.7	2.065	.8483	.484	-.846
	Maths (LPG-o-M)	31	0	3.6	1.429	.8949	.538	-.352
	Total score (LPG-S-Tot)	31	.5	3.7	1.884	.7497	.290	.027
Beliefs about emotions (IE-ACCME CE scale)	Perception (CE-P)	34	60.946	107.479	87.320	11.223	-.751	.064
	Facilitation (CE-F)	34	66.14	135.347	99.849	14.798	.453	.498
	Understanding (CE-C)	34	94.466	127.349	110.307	8.932	-.189	-.836
	Management (CE-G)	34	68.384	113.423	93.673	11.325	-.466	.001
	Total CE score (CE-Tot)	34	75.434	122.332	101.692	13.160	-.563	-.474
Emotional self-concept (IE-ACCME CME scale)	Perception (CME-P)	34	53	123.443	102.765	13.863	-1.404	3.73
	Facilitation (CME-F)	34	80.425	130.438	104.233	12.735	.192	-.599
	Understanding (CME-C)	34	92.482	126.482	109.971	9.564	-.207	-.68
	Management (CME-G)	34	77	119.494	101.889	10.895	-.454	-.422
	Total CME score (CME-Tot)	34	73.352	125.399	101.378	14.039	-.484	-.483
Emotional abilities test (IE-ACCME AE test)	Perception (AE-P)	34	75.434	122.332	101.692	13.160	-.563	-.474
	Facilitation (AE-F)	34	60.946	107.479	87.320	11.223	-.751	.064
	Understanding (AE-C)	34	66.14	135.347	99.849	14.798	.453	.498
	Management (AE-M)	34	94.466	127.349	110.307	8.932	-.189	-.836
	Total AE score (AE-Tot)	34	68.384	113.423	93.673	11.325	-.466	.001
Self-reported management (IE-ACCME Management-DO)	Management-DO (G-Fai)	34	81.436	146.712	111.644	13.328	.065	.758
	Management-DO/g (G-Fai/g)	34	72.466	146.712	105.037	14.090	.296	1.602

Notes: N = number of valid subjects; MIN = minimum; MAX = maximum; M = mean; SD = standard deviation; SK = skewness; KUR = kurtosis
Higher scores represent higher levels of adjustment problems and perceived learning difficulties, while higher scores on the IE-ACCME test represent higher levels on the meta-emotional variables.

Emotional and meta-emotional intelligence

Inspection of IE-ACCME standardized total-scale scores revealed that most participants showed standardized IE-ACCME scale scores in the normal range. Only 4 participants (11.7%, all males) obtained a low score on the scale of beliefs about emotions (CE-TOT <85); 4 participants (11.7%, 1 male and 3 females) obtained a low score in emotional self-concept (CME-TOT <85); and 6 participants (17.6%, 4 males and 2 females) obtained a low score in the ability test (AE-TOT <85). None of the participants obtained scores lower than 85 on two or three IE-ACCME total scale scores. Participants' scores in CE, CME and AE show various degrees of intra-individual variability, demonstrating the usefulness of relying on a multimethod measure, such as the IE-ACCME test.

Relationships among adjustment problems, perceived severity levels of SLD and meta-emotional intelligence

Correlational analyses were performed at group level to examine the correlations among perceived severity levels of SLD, meta-emotional intelligence and adjustment problems. In these analyses, we used only self-report scores for both adjustment problems and perceived severity levels of SLD, since we were interested in examining various relationships between adolescents' self-perception and their abilities. Table II shows that there were positive correlations between total adjustment problems, particularly externalizing problems, and perceived severity levels, indicating that adjustment problems increased with greater perceived severity of difficulty. There were also significant negative correlations between the internalizing dimension score, the total adjustment problems score and IE-ACCME scores. More specifically, these were between the understanding sub-dimensions of the CE scale, the total score of the CME scale, and the perception, facilitation and total score of the AE test. There was also a significant relationship between internalizing problems and G-Fai (r = -.318). All our findings indicated that levels of these emotional variables increased in proportion to a decrease in adjustment problems. There were also positive correlations between YSR-Ext and YSR-Tot with CE-F indicating that beliefs about facilitation of emotions increased in proportion to higher externalizing and total adjustment problems scores. Significant negative correlations were also found in some of the IE-ACCME scores (predominantly the understanding dimension of both the CE and CME scales) and perceived severity levels of SLD, indicating that beliefs and self-concept about emotional understanding decreased in proportion to greater perceived severity levels. Finally, a positive correlation between LPG-s-L and CME-F indicated that self-concept of facilitation of emotion increased in proportion to greater perceived difficulties in reading.

Finding the best predictors of adjustment problems

Three multiple linear regressions were calculated to predict internalizing, externalizing and total-adjustment problems scores (dependent variables), taking account of independent variables correlated with adjustment problems and uncorrelated amongst themselves (Table III). There were four groups of predictors, namely perceived severity level; beliefs about emotions; emotional self-concept; and emotional abilities. In order to choose between predictors correlated with others within the same group, the predictor showing the highest correlation value with the dependent variable was selected for each multiple linear regression.

Table II. Correlations among adjustment problems, severity levels of SLD and meta-emotional intelligence.

		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
1	YSR-Int	-																					
2	YSR-Ext	.424**	-																				
3	YSR-Tot	.905**	.728**	-																			
4	LPG-s-L	.204	.377*	.314*	-																		
5	LPG-s-S	.237	.452**	.386*	.607**	-																	
6	LPG-s-M	.280	.245	.317*	.507**	.423**	-																
7	LPG-s-TOT	.294*	.417**	.406**	.880**	.810**	.732**	-															
8	CE-P	.044	-.053	-.038	.217	-.048	-.348*	-.002	-														
9	CE-F	.166	.398**	.290*	.235	.093	.089	.191	.117	-													
10	CE-C	-.291*	-.257	-.313*	-.448**	-.365*	-.399**	-.488**	.178	-.294*	-												
11	CE-G	.125	.056	.074	-.011	-.094	.255	.000	-.240	.078	.046	-											
12	CE-Tot	-.031	.116	.003	.131	-.109	-.194	-.036	.577**	.524**	.406**	.315*	-										
13	CME-P	.010	-.114	-.099	.168	-.083	.220	.114	.159	-.002	-.330*	.240	-.101	-									
14	CME-F	-.206	-.061	-.202	.322*	.002	.126	.196	.154	.242	-.181	.134	.122	.539**	-								
15	CME-C	-.279	-.088	-.207	-.357*	-.412**	-.385*	-.465**	.138	.033	.302*	-.151	.165	-.136	.209	-							
16	CME-G	-.223	-.027	-.180	.033	-.043	.033	.035	.077	.313*	-.320*	-.202	-.057	.219	.528**	.308*	-						
17	CME-Tot	-.337*	-.151	-.321*	.022	-.245	-.060	-.097	.214	.184	-.136	-.068	.069	.507**	.766**	.580**	.794**	-					
18	AE-P	-.309*	.011	-.239	-.158	-.062	.034	-.109	-.268	.023	-.018	.114	-.052	-.239	.045	.150	.192	.052	-				
19	AE-F	-.266	-.154	-.300*	.067	.002	-.133	.000	.035	-.192	-.120	-.107	-.098	.030	-.003	-.146	.140	.038	.217	-			
20	AE-C	-.136	-.064	-.133	-.238	-.250	-.138	-.261	-.060	-.005	-.228	.104	-.100	.055	-.081	-.033	-.007	-.013	.269	.387*	-		
21	AE-G	-.107	.159	.027	.129	.167	.022	.097	-.139	.133	.040	-.223	-.082	-.218	.092	.139	.141	.054	.316*	-.078	-.209	-	
22	AE-Tot	-.333*	-.126	-.319*	-.164	-.137	-.099	-.174	-.155	-.029	-.161	.071	-.095	-.056	-.001	-.044	.126	.021	.648**	.697**	.801**	.029	-
23	G-FAI	-.318*	-.098	-.263	.008	.188	.170	.136	-.463**	.080	-.356*	-.132	-.395*	-.011	.205	-.078	.411**	.200	.392*	.324*	.163	.347*	.438**
24	G-g-FAI	-.204	-.191	-.200	-.006	-.009	.077	.001	-.303*	.070	-.115	.114	-.207	.222	.557**	.256	.478**	.497**	.320*	.052	-.116	.468**	.153

*p<.05 ** p<.001

The dependent variable for the first model was the internalizing score (YSR-Int), and the independent variables were LPG-s-Tot, CE-C, CME-Tot and AE-Tot. Internalizing score was significantly associated with the predictors' group (F $(4.29) = 4.390$, $p < .005$), accounting for about 38% of the criterion variable variance (with an R^2 of .38 and an R^2 adjusted of .29). Specifically, beliefs about emotions (CE-C), B = -.20, $t = -2.30$, $p < .05$, emotional self-concept (CME-Tot), B = -.23, $t = -2.56$, $p < .05$, and emotional abilities (AE-Tot), B = -.31, $t = -2.53$, $p < .05$), significantly predicted internalizing problems.. Participants' internalizing problems decreased in proportion to an increase in their beliefs, emotional self-concept and emotional abilities. However, CE-C, CME-Tot and AE-Tot were significant predictors of internalizing problems, whereas LPG-s-tot was not.

The second models shows that the externalizing score (YSR-Ext) was also significantly predicted by the predictors' group (F $(2.31) = 7.713$, $p < .005$), accounting for about 33% of the criterion variable variance (with an R^2 of .33 and an R^2 adjusted of .29). The perceived severity level of SLD in writing (LPG-s-S), B = 3.70, $t = 2.84$, $p < .001$, and beliefs about facilitation of emotions (CE-F), B = .15, $t = 2.44$, $p < .05$, significantly predicted externalizing problems. Thus, participants' externalizing problems increased in proportion to their perceived severity level of SLD in writing and their beliefs about facilitation of emotions.

In the third model the total adjustment problems (YSR-Tot) were significantly predicted by the predictors' group, (F $(4.29) = 4,575$ $p < .005$), accounting for about 39% of the criterion variable variance (with an R^2 of .39 and an R^2 adjusted of .30). Emotional self-concept (CME-Tot), B = -.19, $t = -2.31$, $p < .05$, and emotional abilities (AE-Tot), B = -.25, $t = -2.21$, $p < .05$, significantly predicted total adjustment problems. Participants' total adjustment problems increased in proportion to their perceived severity level of SLD and their beliefs about emotions, and decreased in proportion to emotional self-concept and emotional abilities. However, CME-Tot and AE-Tot were significant predictors of total adjustment problems, whereas LPG-s-Tot and CE-C were not.

Discussion

More than one third of adolescents with SLD (38%) reported symptoms of adjustment problems ranging from borderline to clinical levels, this rises to 55% when only internalizing symptoms are considered. Thus, the presence of symptoms of adjustment problems in our selected group of adolescents with SLD is quite concerning, and it is even more striking given that the criterion used for enrolling participants in the study was only the presence of some form of SLD, with no request made for information related to psychological adjustment. A comparison between the adolescents' and parents' assessments of perceived SLD levels and adjustment problems shows a close similarity co between LPG scores reported by parents and their children, suggesting that parents are able to describe the difficulties that their children encounter at school or in doing their homework. In contrast, there is no agreement in the adjustment dimensions, with adolescents describing themselves as having more adjustment problems than in their parents' reported. This suggests a possible underestimation of adjustment problems by parents, probably as a result of defensiveness. For most parents, the psychological problems of their own children may be seen as a parenting inadequacy. On the other hand, this result could also be an overestimation of adjustment problems by adolescents due to their more intense

Table III. Multiple linear regression analyses.

Predictors	Dependent variable			
	Internalizing problems (YSR-Int) [a]			
	B	B	SE	t
Perceived severity level (LPG-s-Tot)	-.17	-.01	2.28	-.07
Beliefs about emotions (CE-C)	-.20	-.41	.09	-2.30[*]
Emotional self-concept (CME-Tot)	-.23	-.39	.09	-2.56[*]
Emotional abilities (AE-Tot)	-.31	-.39	.12	-2.53[*]
	Externalizing problems (YSR-Ext) [b]			
	B	B	SE	t
Perceived severity level (LPG-s-S)	3.70	.42	1.30	2.84[**]
Beliefs about emotions (CE-F)	.15	.36	.06	2.44[*]
	Total Adjustment problems (YSR-Tot) [c]			
	B	b	SE	t
Perceived severity level (LPG-s-Tot)	1.72	.14	2.10	.82
Beliefs about emotions (CE-C)	-.16	-.34	.08	-1.93
Emotional self-concept (CME-Tot)	-.19	-.35	.08	-2.31[*]
Emotional abilities (AE-Tot)	-.25	-.34	.11	-2.21[*]

emotional experiences. Whatever the case, these results suggest that parents and adolescents communicate more about learning difficulties and learning outcomes than about psychological states.

Although the scores on the IE-ACCME scales indicate that suggests that having a SLD is not necessarily associated with emotional problems,   adjustment problems are not only associated with the perceived severity level of learning difficulties, but also with meta-emotional intelligence variables. Specifically, adolescents perceiving a higher level of learning difficulties reported higher symptoms of externalizing adjustment problems, while internalizing symptoms were more related to meta-emotional variables. This indicates that adolescents reporting a lower level of adjustment problems show higher levels of emotional beliefs, self-concept and abilities.

Another interesting result related to the management-DO section of the IE-ACCME scales, shows that the presence of internalizing problems is significantly associated with the G-FAI score, but not with the management of emotions (AE-G) or the G-FAI-g score. This indicates that adolescents who perceive a low level of adjustment problems are those who are more conformist, and they report emotional management behaviours that are similar to those most frequently adopted by their peers. Paradoxically, however, these behaviours are not regarded by their peers (nor, probably, by themselves) as being the best strategies to cope with emotional problems.

An unexpected result in the facilitation sub-dimension of belief about emotions showed a positive correlation with adjustment problems, indicating that adolescents who have wrong beliefs about the facilitation of emotions show lower levels of adjustment problems. In this respect, it might be useful to consider that, in general, facilitation of emotions may the most controversial aspect of Mayer and Salovey's four-branch model (Mayer, Caruso, & Salovey, 2016). Facilitation questions in the CE questionnaire target beliefs about emotions such as "Only positive emotions help to cope with life", which is considered an incorrect belief in the model, while many may see it is a correct answer. In general, however, the associations between meta-emotional intelligence variables and perceived severity levels of SLD are in the expected direction, and indicate that adolescents with higher levels of emotional understanding show lower perceived severity levels of SLD.

Finally, the results of the multiple regression analyses showed that the understanding dimension of beliefs about emotions, emotional self-concept and emotional abilities were significant predictors of internalizing problems, and that emotional self-concept and emotional abilities were also significant predictors of total adjustment problems. In contrast, perceived severity levels of SLD in writing predicted externalizing adjustment problems, possibly indicating that more manifest learning problems (i.e., the presence of frequent spelling errors or illegible writing) are associated with more manifest problems in behaviour, such as rule-breaking or aggressive behaviour.

Conclusion

The results of this study indicate that emotional beliefs, self-concept and emotional intelligence are important for the psychological adjustment of adolescents with SLD, especially in the internalizing factors of adjustment. This does not mean, however, that all adolescents with SLD have emotional problems or that the perceived severity level of SLD does not impact adjustment. Rather, that adjustment problems for adolescents with SLD are more likely to occur when learning difficulties are accompanied by difficulties in the meta-emotional area.

This study is limited by the small number of participants (a frequent problem in studies with clinical populations), the absence of adolescents with SLD who do not attend school, the already discussed prevalence of male participants, and the use of a new instrument to measure the severity level of SLD that has not yet been widely standardized. Moreover, the study used a cross-sectional design and it is not possible to affirm with certainty that problems in emotional intelligence cause adjustment problems or whether they are merely associated with adjustment problems. Longitudinal studies would be necessary to clarify the direction of this relationship. For all these reasons, further studies will be necessary to explore further the association between EI and adjustment problems in young people with SLD.

It is clear that students with SLD must face daily challenges in their learning stemming from their learning difficulties and, for some of them, school may be a very frustrating experience. While inclusive practices are very much concerned with supporting and addressing the learning difficulties of students with SLD, this does not seem to be accompanied with similar support to diversity in the emotional learning and wellbeing of such students. A future goal should well be to include meta-emotional intelligence both in

diagnostic protocols and extra-academic intervention programs. Even more importantly, socio-emotional learning should be considered as vehicle to promote greater inclusion at school. In all likelihood, if students with SLD has the opportunity to gain greater awareness of their own emotions, to share their worries and desires with their classmates and teachers, and to learn together how to cope with difficult situations, schools would become the place where the risk of developing adjustment problems could be effectively prevented or reduced.

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