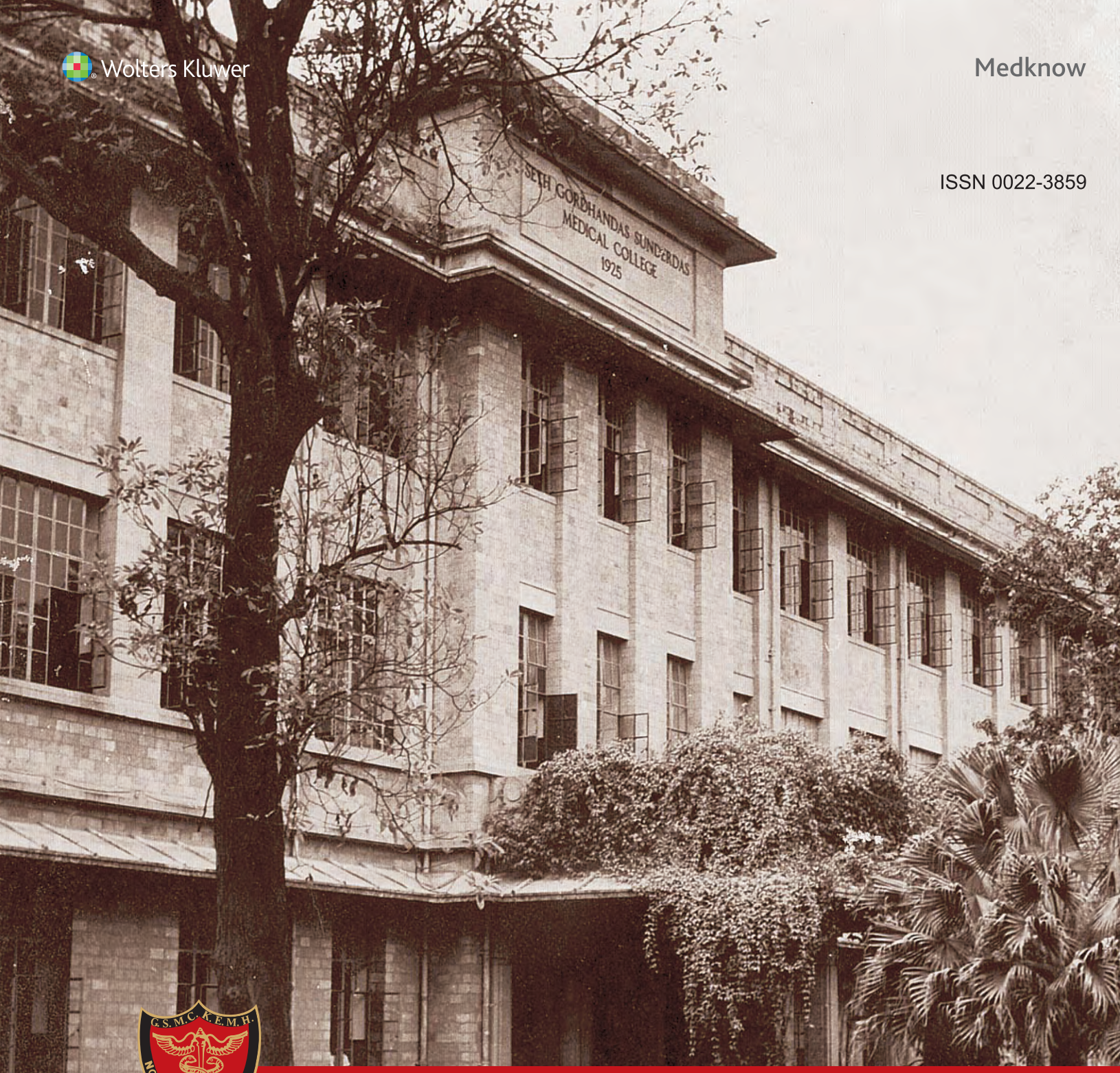

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Do school students with specific learning disabilities have lower emotional intelligence abilities? A cross-sectional questionnaire-based study in Mumbai, Maharashtra, India

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ABSTRACT

Background and Objectives: School students with specific learning disabilities (SpLDs) endure academic difficulties, anxiety, and social maladaptation. The primary objective of the present study was to evaluate the emotional intelligence (EI) abilities of these afflicted students. Its secondary objective was to analyze the impact of socio-demographic variables on their EI abilities. **Settings and Design:** Cross-sectional single-arm questionnaire-based study was conducted in the Learning Disability clinic in a public medical college in Mumbai. **Subjects and Methods:** SpLD students studying in class standards VII–IX were recruited by non-probability sampling. Their EI (overall, subscales, and settings) scores were measured using the Four EsScale of Emotional Intelligence-Adolescents (FESEI-A) questionnaire; and compared with Indian norm scores by utilizing the Mann - Whitney U test. To evaluate the unadjusted impact that each of the "variables" had on the FESEI-A scores, linear regression or the Mann-Whitney U test, or the Kruskal-Wallis test, was utilized as applicable. **Results:** SpLD students had similar "overall" EI abilities as their regular peers. Their EI scores in school setting were significantly lower ($P = 0.001$), but significantly higher in social setting ($P = 0.005$). At univariate level, presence of co-occurring attention-deficit/hyperactivity disorder was significantly associated with a lower "school setting" score ($P = 0.040$). Higher socioeconomic status was significantly associated with a higher "overall" score and "family setting" score ($P = 0.023$ and $P = 0.041$, respectively). **Conclusions:** There is an urgent need to evaluate the EI abilities of SpLD students to identify deficits so that optimum rehabilitation can be facilitated.

KEY WORDS: Adolescent, attention-deficit hyperactivity disorder, behavior, dyslexia, socialization

Introduction

Specific learning disabilities (SpLD) are a group of neurodevelopmental disorders characterized by severe and persistent difficulties in learning to efficiently read ("dyslexia" or "SpLD1"), write ("dysgraphia" or "SpLD2"), and/or perform mathematical calculations ("dyscalculia" or "SpLD3"), despite normal intelligence, conventional instruction, intact hearing and vision, adequate motivation, and sociocultural opportunity.[1] These afflicted students have poor school performance,[1,2] anxiety,[3] and social maladaptation.[4]

Emotional intelligence (EI) is the ability to monitor one's own and others' feelings and emotions, to discriminate among them,

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and to use this information to guide one's thinking and actions, to socialize, and to relate to others.[5,6] We conducted the present study with the primary objective of evaluating the EI abilities of school students with SpLD. The secondary objective was to analyze the impact of socio-demographic variables on the EI of students with SpLD.

Subjects and Methods

Ethics

The present study was approved by the Institutional Ethics Committee [EC/192/2018] and was registered prospectively with the Clinical Trials Registry of India [CTRI/2019/01/016949]. The study was conducted in accordance with the ethical standards laid down in the 1964 Declaration of Helsinki. An accompanying parent or legal guardian signed an informed consent form permitting the participation of his/her offspring. Additionally, all school students signed an assent form before enrolment. The students and their parents were assured that the answers to the questionnaire would be kept confidential.

Design, setting, and sample size calculation

The present cross-sectional single-arm questionnaire-based study was conducted at the Learning Disability (LD) clinic of a public medical college in Mumbai, a megacity in western India over 22 months, from February 2019 to November 2020. The prevalence of SpLD in India has been reported to be 3–10% among student populations.[7] In the present study, we assumed that 7% of the students would have SpLD. With a 95% confidence level and 5% precision, Daniel's formula[8] yielded a sample size of 100.

Inclusion criteria and enrolment process

The study population (recruited by non-probability sampling) comprised students studying in class standards VII–IX who were diagnosed with SpLD ("one or more of these three disabilities," viz., SpLD1 ± SpLD2 ± SpLD3); and were studying in either English or Marathi medium schools. They were well-versed with the English or Marathi language, respectively, and did not have any language barrier. Students with SpLD who had co-morbid chronic medical conditions, such as asthma, epilepsy, diabetes, chronic kidney disease, were excluded from the study.

Diagnosis of SpLD

Each student had undergone standard recommended psycho-educational evaluation before the diagnosis of SpLD was confirmed.[9] Hearing and visual hearing deficits of ≥40% were ruled out by an otolaryngologist and an ophthalmologist, respectively. The counselor ruled out whether any environmental deprivation due to poor home or school environment, or any emotional problem was primarily responsible for a student's academic difficulties.[9] The Wechsler Intelligence Scale for Children-Revised (M. C. Bhatt's Indian adaptation) was used to determine that the student's global intelligence quotient (IQ) score was average or above average (≥85).[10]

Curriculum-Based Testing (CBT) and the Woodcock-Johnson Test (WJ III) are recommended standard methods of diagnosing SpLD.[9,11-14] In the present study, SpLD was diagnosed by utilizing a locally developed and validated English/Marathi curriculum-based test[12] or the Woodcock-Johnson Test of Achievement.[13,14] A special educator/clinical psychologist conducted these tests and an academic underachievement of up to 2 years below the student's actual school grade placement or chronological age led to a diagnosis of SpLD.[9,12-14] Using information from the child's parents and teachers, the diagnosis of co-occurring attention-deficit/hyperactivity disorder (ADHD), if present, was made by ascertaining that the student's specific behaviors met the required Diagnostic and Statistical Manual of Mental Disorders-5 criteria.[15]

Data collection

The EI was measured using the Four EsScale of Emotional Intelligence–Adolescents (FESEI-A) questionnaire.[16] All the students were explained how to complete the FESEI-A questionnaire following which they individually completed it in a quiet room in the LD clinic without their parents/guardians being present. The students were permitted to take the help of the interviewer to read out the question and explain before marking their response.[16] There was no time limit for completing the FESEI-A questionnaire.[16]

Data related to 12 socio-demographic variables ("potential confounders"): (i) age; (ii) gender; (iii) duration of academic problems; (iv) full-scale IQ; (v) co-occurring ADHD; (vi) medium of instruction in school; (vii) school class standard; (viii) type of school attended, viz., "single-sex education" or "co-educational"; (ix) type of school board curriculum, viz., Secondary School Certificate (SSC), Indian Certificate of Secondary Education (ICSE), Central Board of Secondary Education (CBSE), International General Certificate of Secondary Education (IGCSE), or National Institute of Open Schooling (NIOS)]; (x) whether adequate (at least for 2 years) remedial education was taken or not; (xi) socioeconomic status; and (xii) type of family were also collected. The socioeconomic strata were determined by Kuppuswamy's socioeconomic scale.[17]

Up to 20–46% of the children with SpLD have associated ADHD which is characterized by persistent hyperactivity, impulsivity, and inattention, and this comorbidity further impairs their learning.[18,19] The ability of a learning-disabled student to cope with academic difficulties may vary according to the type of peer pressure faced in school and the ability to cope with the rigors of the school curriculum. Remedial education is the cornerstone of treatment of SpLD.[1,2,9] One-to-one hourly remedial sessions with a special educator/remedial teacher twice or thrice weekly for a few years are necessary to achieve academic competence.[2,9]

FESEI-A questionnaire

Oke *et al.*[16] have developed this generic instrument (in English and Marathi) which is designed to measure the EI abilities of students studying in class standards VII–IX. The FESEI-A questionnaire[16] is based on Mayer-Salovey's four-factor model,[20] conceptualizing EI as composed of abilities related to the self and those that emerge in inter-personal settings. The FESEI-A questionnaire has three sections: (i) situation-based multiple-choice (three response options) section - comprising

24 situations ("items"). Each situation is scored 1–3, and therefore, the minimum and maximum possible scores in this section are 24 and 72, respectively; (ii) Likert-type section - comprising 24 statements ("items"). The response to each statement can be one of the following: "always," "often," "sometimes," "rarely," or "never." Each statement is scored 1–5, and therefore, the minimum and maximum possible scores in this section are 24 and 120, respectively; and, (iii) an open-ended section with pictorial items - comprising six pictures and their descriptions. Below each picture, there are four questions which the student has to answer in his/her own words. Hence, there are a total of 24 questions ("items") for these 6 pictures. Each question is scored 1–3, and therefore, the minimum and maximum possible scores in this section are 24 and 72, respectively.[16] Thus, the FESEI-A questionnaire has 72 items and the student can score from a minimum of 72 to a maximum of 264. The FESEI-A questionnaire utilizes the performance-based format to assess a student's Ability-EI.[6] In general, for each item, the students choose (in sections i and ii) or write (in section iii) an answer that reflects their understanding of the emotional situation presented to them.

The FESEI-A questionnaire can be utilized to obtain several EI scores; namely: (i) an "overall" EI score; (ii) four "subscale" EI scores [see Table 1]; and (iii) EI scores in three settings (school, family, and social).[16] The FESEI-A questionnaire has been utilized to obtain EI scores in regular students (n = 498; boys: girls' ratio 0.99:1; mean age 13.80 yrs., SD 0.79) studying in seven different schools in Pune city, Maharashtra, India. It has undergone extensive validation and has been shown to have good internal consistency (Cronbach's alpha = 0.76).[16]

Data analysis

Analysis was done using the Statistical Package for Social Sciences, version 25.0 for Windows (Chicago, IL, USA). The demographic data were expressed using descriptive statistics. First, the FESEI-A (overall, subscales, and settings) scores of the SpLD students were calculated as per the recommended guidelines[16]; and were tested for normality using the Shapiro - Wilk test that indicated non-normal distributions. The Mann - Whitney U test was used to calculate the differences between the FESEI-A (overall, subscales, and settings) scores of the SpLD and regular students' groups. Second, in order to investigate the reliability of the FESEI-A in the present study, internal consistencies (Cronbach's alpha) were calculated for each of the FESEI-A scores. Third, the correlation coefficients (as measured by Spearman's rho) between the overall and subscales scores of FESEI-A; and between FESEI-A overall and settings scores of the study group; were calculated. Fourth, to evaluate the unadjusted impact of each of the socio-demographic "variables" on the FESEI-A (overall, subscales, and settings) scores of the study group, "univariate analysis" was carried out. Linear regression was used for continuous variables, the Mann-Whitney U test for binary variables, and the Kruskal-Wallis test for variables which had multiple groups. Furthermore, purposeful selection of variables (cut-off levels of $P < 0.20$ on the univariate analysis)[21] was done; and multivariate regression analysis was performed for determining the "independent" impact that these selected variables had on the FESEI-A (overall, subscales, and settings) scores of the study group. A two-tailed P value of < 0.05 was considered significant.

Table 1: The FESEI-A* tool's four subscales and corresponding components

	Subscales	Components
(i)	Experiencing emotions	Perceiving emotions within self
		Understanding emotions of self
(ii)	Exploring emotions	Problem solving
		Managing emotions
(iii)	Empathizing with others	Perceiving emotions in others
		Understanding emotions of others
(iv)	Empowering self through emotions	Self-motivation
		Effective socialization

*FESEI-A - Four EsScale of Emotional Intelligence-Adolescents

Results

Characteristics of SpLD students

Their mean age was 13.78 yrs. (SD 0.88, range 11.17–16.0; $P > 0.05$, as compared to regular students). The boys: girls' ratio was 2.4:1. The mean duration of academic problems in the SpLD students was 4.08 yrs. (SD 2.61, range 1.0–10.0). Of the 30 students who had taken remedial education, only 10 had taken it regularly for a minimum period of 2 years. Other details of clinical and demographic characteristics ("variables") are shown in Table 2. No parent/guardian or student declined consent/assent for participation in the study. The time taken by the students to fill the FESEI-A questionnaire ranged from 30 to 45 min. There were no missing data for the FESEI-A items.

Reliability of FESEI-A scores of SpLD students

Testing for reliability ("internal consistency") involves estimating how consistently individuals respond to the items within a scale.[22,23] Where items within a scale measure different elements of patient experience (as in the multidimensional FESEI-A tool), an acceptable Cronbach's alpha (i.e., >0.45), rather than a high alpha (i.e., ≥0.7), is to be expected.[22-25] In the current study sample, the internal consistency for the FESEI-A overall EI score was good (alpha = 0.82); for one subscale score and all three settings scores was acceptable (ranging from "empowering self through emotions involvement," alpha = 0.48; "school setting," alpha = 0.47; "family setting," alpha = 0.51; "social setting," alpha = 0.47). Three subscale scores "experiencing emotions," "exploring emotions," and "empathizing with others" had lower internal consistencies (alpha = 0.41, 0.38, and 0.32, respectively).

Correlations between the FESEI-A overall score and subscales' scores of SpLD students

Table 3a shows the correlations between the FESEI-A subscales scores and the overall score for the whole sample. These can be used as another test of the convergent validity of the constructs.[26] There was a highly strong relationship between all the four subscales' scores and the "overall" EI score, indicating a good convergent validity for these constructs.

Table 2: Socio-demographic characteristics of students with specific learning disabilities

Characteristics	*n*=100
Type of SpLD*	
SpLD 1 + 2 + 3	49
SpLD 1 + 3	33
SpLD 3	9
SpLD 1 + 2	7
SpLD 1	1
SpLD 2	1
Student gender	
Male	71
Female	29
Full-scale IQ†	
Superior (120 – 129)	2
High average (110 – 119)	14
Average (90 – 109)	75
Low average (≥85 – 89)	9
Co-occurring ADHD‡	
Present	67
Absent	33
Medium of instruction	
English	96
Marathi	4
School class standard	
VII	18
VIII	25
IX	57
Type of school	
Single-sex education	16
Co-educational	84
School educational board	
SSC§	48
ICSE‖	31
CBSE¶	15
IGCSE**	3
NIOS††	3
Adequate remedial education	
Taken	10
Not taken	90
Socioeconomic status	
Upper	29
Upper middle	50
Lower middle	14
Upper lower	7
Type of family	
Nuclear	56
Joint	44

*SpLD: specific learning disabilities, type 1 - dyslexia, type 2 - dysgraphia, type 3 - dyscalculia; †IQ - intelligence quotient; ‡ADHD - attention-deficit/hyperactivity disorder; §SSC - Secondary School Certificate; ‖ICSE - Indian Certificate of Secondary Education; ¶CBSE - Central Board of Secondary Education; ** **IGCSE - International General Certificate of Secondary Education; ††NIOS – National Institute of Open Schooling

Table 3a: Correlations (Spearmen's rho) between overall and subscales scores of FESEI-A* of study group

	1	(i)	(ii)	(iii)	(iv)
1. Overall EI†	-	0.790‡	0.785‡	0.770‡	0.787‡
(i) Experiencing emotions		-	0.612‡	0.468‡	0.490‡
(ii) Exploring emotions			-	0.496‡	0.465‡
(iii) Empathizing with others				-	0.529‡
(iv) Empowering self through emotions					-

*FESEI-A - Four EsScale of Emotional Intelligence-Adolescents; †EI - emotional intelligence; Interpretation of correlation size: positive rho-values: 0.0–0.09=none; 0.1–<0.3=low; 0.3–<0.5=moderate; 0.5–1.0=high; ‡P<0.01 significant (two-tailed)

Correlations between the FESEI-A overall score and settings scores of SpLD students

Table 3b shows the correlations between the FESEI-A settings scores and the overall score for the whole sample. There was a highly strong relationship between all the three settings scores and the "overall" EI score, indicating a good convergent validity for these constructs.

Comparison of FESEI-A scores between the study and control groups

Table 4 shows the comparison of FESEI-A overall, subscales, and settings scores between the SpLD students and regular students' groups. SpLD students' EI scores in the school setting were significantly lower ($P = 0.001$). However, their EI scores in social setting were significantly higher ($P = 0.005$).

Impact of socio-demographic variables on FESEI-A scores of SpLD students

At the univariate level, SpLD students having a longer duration of academic problems was significantly associated with a higher "empathizing with others" and "empowering self through emotions" subscale scores ($P = 0.036$ and $P = 0.047$, respectively). Presence of co-occurring ADHD was significantly associated with a lower "school setting" score [$P = 0.040$, Table 5]. A higher socioeconomic status was significantly associated with a higher "overall" score and "family setting" score [$P = 0.023$ and $P = 0.041$, respectively, Table 6]. Living in a nuclear family was significantly associated with a higher "empowering self through emotions" subscale score ($P = 0.011$).

Multivariate analysis revealed that none of the 12 socio-demographic variables were clinically significant to independently predict higher or lower FESEI-A scores for these learning-disabled students.

Discussion

The present study documents that, in the city of Mumbai, western India, SpLD students studying in class VII–IX have similar "overall" EI abilities as compared to their regular peers. This significant finding implies that they have the same potential to experience and explore emotions, empathize, and empower themselves through emotions [Table 1] as their regular peers. We also found out that their "overall" EI abilities

were not influenced by their age, gender, duration of academic problems, level of intellectual functioning, co-occurring ADHD, medium of school instruction, class standard, type of school attended or curriculum, whether adequate remedial education was taken or not, and/or the type of family the student lived in. Although, these learning-disabled students lagged behind in their EI abilities in their "school setting;" their abilities in the "social setting" were far ahead. Subsequent subgroup analysis within these learning-disabled students revealed that:

(i) The SpLD students' abilities to empathize with others and to empower themselves through emotions increased significantly as they endured a longer duration of academic problems.

(ii) Co-occurring ADHD significantly lowered SpLD students' EI abilities in their "school settings."

(iii) SpLD students who belonged to the upper strata of society had significantly higher "overall" and "family setting" EI abilities.

(iv) SpLD students who stayed in nuclear families had significantly higher abilities to empower themselves through emotions.

Table 3b: Correlations (Spearmen's rho) between FESEI-A* overall and settings scores of study group

	1	2	3	4
1. Overall EI†	-	0.821‡	0.841‡	0.850‡
2. EI in school setting		-	0.545‡	0.556‡
3. EI in a family setting			-	0.613‡
4. EI in a social setting				-

*FESEI-A - Four EsScale of Emotional Intelligence-Adolescents; †EI - emotional intelligence; Interpretation of correlation size: 0.0–0.09=none; 0.1–<0.3=low; 0.3–<0.5=moderate; 0.5–1.0=high; ‡*P* <0.01 significant (two-tailed)

To date, only Zysberg and Kassler[27] have measured the EI abilities in individuals with SpLD. They have reported that adult SpLD college students (mean age 25.77 yrs., SD 3.11) have similar overall EI abilities as their regular peers.[28] They had also utilized a performance-based test, the Audio-Visual Test of Emotional Intelligence (AVEI),[28] a 27-item computer-based test, to measure the overall EI abilities. Although the results of the present study are similar, its study population was much younger (mean age 13.78 yrs., SD 0.88).

What is the significance of the present study? First, to our knowledge, the present study is the first one to have analyzed the EI abilities of learning-disabled adolescents separately in school, family, and social settings; and documented that these are restricted in their school setting. Second, the present study

Table 4: Comparison of FESEI-A* overall, subscales, and settings scores between the study and control groups

	Median score (IQR)†		*P*‡
	Students with SpLD§ (*n*=100)	Regular students[16] (*n*=498)	
Overall EI‖	198.00 (185.00 – 210.00)	200.00 (188.75 – 211.00)	0.555
(i) Experiencing emotions	49.00 (45.00 – 52.00)	49.00 (46.00 – 52.00)	0.797
(ii) Exploring emotions	47.00 (44.00 – 49.00)	47.00 (43.00 – 51.00)	0.704
(iii) Empathizing with others	50.50 (46.25 – 54.00)	51.00 (47.00 – 55.00)	0.316
(iv) Empowering self through emotions	52.00 (49.00 – 57.00)	53.00 (49.00 – 56.00)	0.536
EI in school setting	64.00 (60.00 – 69.00)	67.00 (63.00 – 71.00)	0.001¶
EI in family setting	65.50 (61.00 – 69.00)	66.00 (62.00 – 71.00)	0.054
EI in social setting	70.00 (64.25 – 73.75)	67.00 (59.00 – 73.00)	0.005¶

*FESEI-A - Four EsScale of Emotional Intelligence-Adolescents; †IQR - interquartile range; §SpLD - specific learning disabilities; ‖EI - emotional intelligence; ‡Mann-Whitney U test; ¶*P*<0.05 significant (two-tailed)

Table 5: Comparison of FESEI-A* overall, subscales, and settings scores between students with SpLD† and SpLD with co-occurring ADHD‡

	Median score (IQR)§		*P*‖
	SpLD only students (*n*=33)	SpLD+ADHD students (*n*=67)	
Overall EI¶	202.00 (195.00 – 210.00)	196.00 (183.00 – 209.50)	0.173
(i) Experiencing emotions	51.00 (46.00 – 54.00)	48.00 (45.00 – 52.00)	0.154
(ii) Exploring emotions	47.00 (45.00 – 49.00)	47.00 (44.00 – 49.00)	0.874
(iii) Empathizing with others	52.00 (49.00 – 54.00)	50.00 (46.00 – 54.00)	0.250
(iv) Empowering self through emotions	55.00 (51.00 – 58.00)	52.00 (49.00 – 55.50)	0.057
EI in school setting	66.00 (63.00 – 69.00)	64.00 (59.00 – 68.00)	0.040**
EI in family setting	66.00 (63.00 – 68.00)	65.00 (60.5 – 69.00)	0.535
EI in social setting	70.00 (67.00 – 73.00)	70.00 (62.50 – 75.00)	0.584

*FESEI-A - Four EsScale of Emotional Intelligence-Adolescents; †SpLD - specific learning disabilities; ‡ADHD - attention -deficit/hyperactivity disorder; §IQR - interquartile range; ¶EI - emotional intelligence; ‖Mann-Whitney U test; **$P<0.05$ significant (two-tailed)

Table 6: Comparison of FESEI-A* overall, subscales and settings scores between the study group students as per their socioeconomic status

	Median score (IQR)†				*P*‡
	Upper (*n*=29)	Upper middle (*n*=50)	Lower middle (*n*=14)	Upper lower (*n*=7)	
Overall EI§	204.00 (198.00 – 211.00)	198.00 (185.00 – 210.00)	194.50 (184.00 – 206.50)	182.00 (180.50 – 189.50)	0.023‖
(i) Experiencing emotions	49.00 (46.00 – 52.00)	50.50 (45.25 – 52.00)	48.50 (43.50 – 51.50)	45.00 (42.50 – 47.50)	0.148
(ii) Exploring emotions	47.00 (46.00 – 49.00)	47.00 (43.00 – 50.00)	46.50 (42.75 – 49.75)	45.00 (43.00 – 46.00)	0.245
(iii) Empathizing with others	52.00 (49.00 – 54.00)	51.00 (46.25 – 54.00)	50.00 (46.00 – 51.75)	48.00 (40.00 – 49.50)	0.086
(iv) Empowering self through emotions	55.00 (51.00 – 57.00)	52.00 (49.00 – 57.00)	53.00 (46.00 – 58.00)	50.00 (48.00 – 51.00)	0.205
EI in school setting	68.00 (61.00 – 70.00)	65.00 (59.25 – 68.00)	64.00 (61.50 – 65.00)	62.00 (60.00 – 63.50)	0.282
EI in family setting	67.00 (63.00 – 69.00)	65.50 (61.50 – 69.00)	65.00 (57.25 – 67.75)	57.00 (55.50 – 59.00)	0.041‖
EI in social setting	71.00 (69.00 – 75.00)	70.00 (65.00 – 72.75)	69.00 (62.00 – 75.00)	62.00 (61.50 – 64.00)	0.061

*FESEI-A - Four EsScale of Emotional Intelligence-Adolescents; †IQR - interquartile range; §EI - emotional intelligence; ‡Kruskal-Wallis test; ‖$P<0.05$ significant (two-tailed)

identifies the socio-demographic factors which adversely impact the EI abilities of these students, viz. co-occurring ADHD, a lower socioeconomic stratum of society, shorter duration of academic problems, and living in a joint family.

What are the practical implications of the present study? We recommend assessing the EI abilities of all SpLD students studying in classes VII–IX to identify those having deficits. SpLD students, with their inherent academic difficulties, are prone to develop low self-esteem, a sense of loneliness, frustrations, anxiety, depression, and aggressive behavior leading to social maladaptation and negative long-term outcomes, such as school dropout, juvenile delinquency, and even unemployment.[3,4,6] An adolescent SpLD student in whom deficits are detected should be recommended to undergo training in a social-emotional skill development program to ameliorate these deficits. School-based intervention programs to improve social-emotional competence have been shown to improve social and emotional skills, attitudes, behavior, academic performance, and overall wellbeing.[29]

We have no proper explanation for why EI abilities of learning-disabled adolescents get restricted in their school settings or why they are advanced in their social settings; or why the duration of academic problems, co-occurring ADHD, socioeconomic status, and family type influences their EI abilities. These aspects are beyond the scope of the present study. Future studies are required to evaluate the role of these socio-demographic factors in influencing the EI abilities of the learning-disabled students. Also, future researchers should aim to formulate strategies to prevent the underperformance of EI abilities of learning-disabled students in their school setting.

The strengths of the present study include adequate sampling size, high participation and response rates, and the use of a validated Indian instrument with the availability of Indian norm scores. The reliability for the overall FESEI-A score was good and for all three settings scores was acceptable. The convergent validity for all the constructs of the FESEI-A questionnaire was good. Another significant strength of the present study is that we utilized a performance-based test to measure the EI of these students; wherein test-takers give the answer they believe is correct, and consequently try to obtain a score as high as possible and the scores cannot be faked.[6]

Although the present study contributes to the literature in a number of ways, it has its limitations. First, the gender ratio between the study and norms group was not matched. It is well-known that in our society more boys are referred for assessment of academic problems as parents generally have higher expectations from their sons. This could have led to an ascertainment bias in the present study. However, there is also a primary male vulnerability to develop dyslexia.[30] Second, since SpLD students from Marathi-medium schools were underrepresented there may be a potential language bias in our findings. More than 95% of the students referred to our clinic are from English-medium schools as the awareness of SpLD is still probably suboptimal in the vernacular-medium school professionals. Third, SpLD students from the lower socioeconomic strata of society were few in our study population. Probably their parents were not motivated enough to bring their child to our clinic for assessment. Fourth, the non-probability sampling of the present study may have led to a recruitment bias in our findings. However, we do not believe that these limitations unfavorably affect the utility of our results.

Conclusion

There is an urgent need to start assessing the EI of learning-disabled adolescents and the FESEI-A questionnaire can help in this process. Early diagnosis of deficits in EI abilities would help to optimize the management of these students and may lead to favorable long-term academic and social outcomes.

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Declaration of parent/patient consent/assent

The authors certify that appropriate parents' consent and patients' assent were obtained.

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Conflict of interest

Dr. Sunil Karande is the Editor of the Journal of Postgraduate Medicine.

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