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EMOTIONAL COMPETENCE OF MOTHERS AND PSYCHOPATHOLOGY IN PRESCHOOL CHILDREN WITH SPECIFIC LANGUAGE IMPAIRMENT (SLI)

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SUMMARY

Background: This study aims to establish whether mothers of children with specific language impairments (SLI) have reduced emotional competence and whether individual dimensions of maternal emotional competence are related to emotional and behavioral problems in children.

Subjects and methods: The clinical sample comprised 97 preschool children (23 girls) with SLI from, while the peer sample comprised 60 (34 girls) developmentally normal preschool children. The emotional competence of mothers was evaluated using the Emotional Competence Questionnaire (ESCQ-45). Emotional and behavioral difficulties in children were assessed by mothers, speech therapists, and teachers, using Achenbach's CBCL and CTRF scales.

Results: A lower emotional competence was found in mothers of children with specific language impairments. Mothers in clinical and peer samples differed in their ability to express emotions, while there was no statistically significant difference in their ability to recognize and manage emotions. Poor emotional regulation in mothers was linked to increased emotional reactivity, anxiety, and depressive manifestations in children with SLI, as well as to their speech comprehension.

Conclusion: Emotional expression in mothers seems to be important for psychopathology in children with SLI, and their expressive and receptive speech. Our findings suggest that, in addition to the rehabilitation of children with SLI, clinical practice should implement preventative work with parents to enhance their emotional competence.

Key words: specific language impairment - preschool children - emotional problems - behavioral problems - maternal emotional competence - CBCL - CTRF

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INTRODUCTION

Specific language impairment (SLI) refers to a heterogeneous group of difficulties with language ability, and is diagnosed when a delay in language development is present without an apparent cause. It is unclear whether this represents a delay of normal language development, or results from a specific disturbance or disturbances. The usual prevalence of SLI is between 3 and 7% (Norbury & Paul 2013). Children with SLI fail to develop speech and language in accordance with their chronological age, and the impairments cannot be explained by delayed intellectual development, a physically abnormal speech apparatus, brain injury, or hearing loss (Bishop & Norbury 2008). SLI encompasses problems with listening, speech, understanding, and fluency, which contribute to the quality of communication. Children with SLI have a discrepancy between verbal and nonverbal development; verbal development lags behind nonverbal development, which is generally intact. The consequences range from problems with speech production, including complex problems in expressive speech (e.g., grammar), to problems with speech comprehension. Diminished speech comprehension is associated with poor auditory

perception and poor working memory (Batshaw 2002). Problems with speech comprehension are the most common symptoms present in SLI, and are therefore critical for establishing diagnosis (Botting 2005).

Presently, the cause of SLI cannot be stated with certainty. The etiology is complex and consists of interconnected biological, including genetic influences, and environmental factors (Vargha-Khadem et al. 2005). Smith & Tyler (2009) contend that without emotional stimuli, children will lack adequate motivation for communication and speech, and consequently the rate of speech and language acquisition may be reduced. Emotional interaction with parents and caregivers, which motivates learning speech and language, is therefore necessary for early speech and language development. During early speech development, parents should encourage interaction with their children through the use of affective speech – so-called "maternal speech".

Research demonstrates that children with SLI have other developmental problems as well. Beitchman et al. (1996) found that preschoolers with receptive and severe spoken language difficulties have more problems with behavior than their peers, and that school-age children have difficulties with social competence. This has been confirmed in longitudinal studies following

children with delayed language development, which demonstrate that these children have more emotional and behavioral difficulties, trouble studying, reading, and writing, compared to their peers (Silva et al. 1987). Children with SLI have an increased risk of psychiatric problems; this risk is more pronounced in girls than boys (Beitchman et al. 1992). Some psychiatric problems are more common than others, such as ADHD (Snowling et al. 2006). Individual deficits such as impaired speech comprehension, or problems articulating, are not found to be consistently associated with behavioral problems. Beitchman et al. (1992) propose that neurodevelopmental immaturity is often present in the background of both language and psychological difficulties. Verbal skills are critical for the regulation of behavior, and communication in one's environment. Guerin & Gottfreid (1987) found that verbal intelligence correlates with measures of maladaptive behavior. In a sample of developmentally normal six year old children attending regular kindergarten, Bilać (1996) showed a significant negative association between verbal intelligence and maladaptive behavior in boys, but not in girls.

Emotions are important motivational factors. The motivational and emotional process can strongly influence cognitive processes, speech and language development, and behavior. In the last 10 years, brain imaging techniques such as MRI have been used in the neurosciences to acquire information about the functional connections between emotion and cognitive functions such as perception, attention, memory, and decision making (Deak 2011). According to Vygotsky (1983), behavioral regulation is dependent on internalized speech which subsequently becomes thought. Therefore, language development enables the transition from externally controlled behaviors toward behavior that children manage internally. Consequently, a delay in language development results not only in delayed cognitive development, but trouble with social adjustment, which can manifest in various psychiatric disturbances.

The boundary between normal and pathological in the preschool age is very thin. Developmental characteristics in preschoolers include an increased need for attention, increased motor activity, short attention, lack of self-control, and a strong vulnerability to emotions. According to Piaget (1930), seven years are required for the integration of left and right hemispheres, responsible for emotion and intellect respectively, which he terms the operational period. In agreement with the developmental characteristics in the preschool period listed above, Achenbach (1983) devised scales with an empirical means of distinguishing normal from abnormal. This presupposes that respondents have the ability to distinguish a normal from an abnormal reaction for a given age group. Behavior that is developmentally normal in a two year old is abnormal in an older child, e.g., separation anxiety and defiance. Therefore, establishing diagnoses must be delicate matter, carefully weighed in the background of each child's age.

Emotional competence (EC) is interpreted as the ability to express and show feelings to others. This embraces the degree of facility of communication, and the ability to accurately express oneself. EC is understood as a crucial social skill necessary for recognizing, interpreting, and constructively responding to one's own emotions and the emotions of others. Presently, the EC construct is an intriguing subject of research in fields that strive to enhance success in business. Goleman (2000) defines EC as an acquired skill, founded on emotional intelligence, which promotes excellence at work. It has been found that teenagers of families with higher EC have fewer suicidal thoughts (Kwok 2014). Emotional functioning within families is an uncharted area of study, especially in families with children that have SLI. As a child's need for communication arises from affective parent-child interactions, we consider EC within the family to be a valuable subject of research in children with SLI.

The aim of this study was to 1) examine differences in emotional and behavioral problems in children from clinical and peer samples; 2) compare mothers' and speech therapist's/teachers' estimates of emotional and behavioral problems in the same group of children; 3) determine whether mothers of children with SLI differ in EC compared to mothers of children without SLI; 4) determine whether there is a relationship between the EC of mothers and their child's ability to understand speech; and 5) investigate whether certain factors of EC in mothers are specifically linked to specific emotional and behavioral problems in children with SLI.

SUBJECTS AND METHODS

Participants

The research subjects in this study are children attending a specialized kindergarten for children with language impairments. The daily program consists of a 6-hour intensive, complex rehabilitative program, using Professor Petar Guberina's verbotonal rehabilitative method (1981). The *clinical sample* comprised 97 children from the specialized kindergarten, ranging from 3 years and 9 months, to 7 years and 3 months of age, with an average age of 5 years and 4 months. This sample included two generations of children in the kindergarten who had just begun rehabilitation. The clinical sample initially comprised 134 children; children with disorders that could impact language development, such as deafness, various syndromes, and possible intellectual disability, were excluded. The *peer sample* comprised 60 children from a regular kindergarten, ranging from 3 years and 10 months, to 7 years and 3 months of age, with an average age of 5 years and 8 months. The children were randomly selected from urban and suburban locations in an effort to limit socioeconomic differences. The peer sample initially comprised 62 children; one child had an extremely low result on a test of language comprehension and was

subsequently removed, while one child's questionnaire was incorrect. A psychologist excluded the presence of intellectual disability in this group. Detailed description of these samples is provided in Table 1. The study was approved by the ethical committees of the relevant institutions and informed consent was obtained by the participants' legal guardians.

Procedure

Data was collected through a standard team work-up at the institution by employing scales used for the purpose of this study.

- The diagnosis of SLI was made by consensus amongst speech therapists, psychologists, ENT specialists, physiotherapists, neuropsychiatrists, and psychiatrists, following standard procedure. After

establishing diagnosis, the team decided whether the child would be referred to Polyclinic "SUVAG" for intense rehabilitation, or whether individual speech therapy would be sufficient. Criteria for intense rehabilitation were disproportionate development, i.e., lower verbal skills compared to nonverbal. The speech therapist established the presence of deficits in speech and language development.

- The following tests were administered:
 - developmental scales: Brunett-Lezine developmental test (RT-P) or Čuturić developmental test (RTČ-P) and Reynell's developmental language scale.
 - intelligence tests: Wechsler intelligence test (WISC-IV), Leiter's intelligence test, and Raven's colored progressive matrices for children (CPM)

Table 1. Anamnestic and demographic data of mothers and their children from clinical and peer samples

	Clinical Sample		Peer Sample	
	N	%	N	%
Number of children	97	100%	60	100%
Age range	46 - 85 months		46 - 85 months	
Average age	5 y. 4 m.		5 y. 8 m.	
Sex Male	74	76.30%	26	43.30%
Sex Female	23	23.70%	34	56.70%
Pregnancy				
Normal	56	57.70%	47	78.30%
Risky	41	42.30%	13	21.70%
Birth				
Normal	84	86.60%	51	85.00%
Other	12	12.40%	9	15.00%
Duration of pregnancy				
Term	55	56.80%	57	95.00%
Preterm	30	30.90%	3	4.90%
Postterm	11	11.30%		
Birth status				
Without complications	56	57.70%	51	85.00%
Asphyxia, jaundice, mild cerebral bleeding, other	41	41.30%	9	15.00%
Twins	15	15.50%	0	0%
Demographic data of family				
Average maternal age	34y. 2m. (24-50 y.)		33y. 8m. (25-43y.)	
Maternal education; graduate level or higher	21	21.65%	25	41.67%
Paternal education; graduate level or higher	18	18.56%	20	33.33%
Marital status of parents				
Married	87	89.70%	50	83.33%
Separated	8	8.20%	7	11.67%
Other	2	2.10%	3	5.00%
Number of Children in Family				
1	14	14.40%	19	31.70%
2	57	58.80%	35	58.30%
3 or more	26	26.80%	6	8.30%

- Mothers rated emotional and behavioral problems using Achenbach's CBCL scales. Ratings were made by mothers, and not by fathers, because mothers spent more time with their children.
- The mothers were granted part-time or full-time maternity leave, and were thus able to spend more time with their children and participate in rehabilitation.
- Speech therapists and teachers rated emotional and behavioral problems using Achenbach's C-TRF Scale in the clinical sample and peer sample, respectively. The ratings were made 2-3 months after the onset of rehabilitation in order to avoid the initial period of adaptation, and so adequate time was provided to get to know the children.
- The ESCQ-45 was used to rate the emotional competence of mothers.

Measures

The Emotional Skills and Competence Questionnaire - 45 (ESCQ-45) is founded on the tenets of the emotional intelligence construct (Takšić 2001). The abbreviated version contains 45 items of self-assessment across three factors. The first factor is based on the ability to perceive, *recognize*, and understand emotions (RE). The second factor is based on the ability to *express* and name emotions (EE). The third factor measures the ability to regulate and control emotions, i.e., emotional *management* (ME). The total EC (TEC) is the sum of these three factors. The ESCQ has been shown to possess adequate factorial and criterion validity (Takšić 1998, Takšić et al. 2001). These findings support the relative independence of the ESCQ scales from general intelligence, and are consistent with results from other research, especially when emotional intelligence is based on self-assessment (Mayer & Stevens 1994). The Cronbach's internal reliability coefficients of all scales ranged from 0.80 to 0.92.

Achenbach's System of Empirically Based Assessment (ASEBA) has been developed and standardized by Achenbach & Eidenbrock (1983) on normal and clinically diagnosed children in the United States. Revised norms are published in CBCL and C-TRF manuals. There are two types of scales: the CBCL (Child Behavior Checklist) for parents; and the C-TRF (Caregiver-Teacher Report Form) scale for professionals (speech therapists, teachers).

The CBCL contains 100 items that identify problem behavior in children. The respondent rates each item as 0 for *not true*, 1 for *somewhat or sometimes true*, or 2 for *very true* or *often true*. Problems are categorized into 8 separate domains or syndrome subscales: *emotional reactivity*; *anxious/depressed*; *somatic complaints*; *withdrawn*; *sleep problems*; *attention problems*; *aggressive behavior*; and *other problems*. These scores are summed to provide scores for *Internalizing* (anxious/depressed, somatic complaints, withdrawn, sleep

problems, attention problems) and *Externalizing* (emotional reactivity, aggressive behavior) problems scales. The results are interpreted as a general impression of the problematic behavior for each child.

The C-TRF scale for speech therapists and teachers contains 100 items and is subdivided into syndrome subscales just as in the CBCL, though the sleep problems scale is excluded in the C-TRF.

The average test-retest reliability for the total problems score in the CBCL amounts to $\alpha=0.90$, and $\alpha=0.88$ in the C-TRF. Average test-retest reliability for syndrome scales is $\alpha=0.85$ in the CBCL, and $\alpha=0.81$ in the C-TRF (Achenbach & Rescorla 2000).

Statistical analysis

Data were processed using descriptive statistics, Student's t-test, Pearson's correlation, and regression and reduced regression analysis. The Kolmogorov-Smirnov test revealed that data from both groups on the ESCQ-45 was normally distributed, as were total results from CBCL, C-TRF, and Reynell's scales. All results from ESCQ-45, CBCL, and C-TRF scales were converted to standard T values. Croatian national standards for Achenbach's CBCL and C-TRF scales were not adapted; American norms (M and SD) from Achenbach's manual were used instead. The following steps in statistical procedures were used: 1) t-test: comparing CBCL and C-TRF scores in clinical and peer samples; comparing mothers' ESCQ -45 scores in clinical and peer samples; 2) correlations: between mothers' and speech therapists'/teachers' scores on CBCL and C-TRF scales in clinical and peer samples; between individual factors of EC in mothers and scores on CBCL and C-TRF scales; 3) regression and reduced regression analysis: the contribution of EC in mothers to children's speech comprehension. All the data analyses were performed by using the SPSS 17. The level of statistical significance was defined as P less than 0.05.

RESULTS

Mothers' scores on CBCL syndrome scales

Results showed a statistically significant greater amount of problems in the clinical sample compared to peers ($p<0.05$) in the following syndrome scales: *emotional reactivity* ($t=2.677$); *anxious/depressed* ($t=1.992$); *withdrawn* ($t=5.205$); *attention problems* ($t=6.712$); *aggressive behavior* ($t=4.270$); *other problems* ($t=5.845$). Only *somatic complaints* ($t=1.861$) and *sleep problems* ($t=-0.462$) syndrome scales have a result distribution that does not significantly differ between groups. For internalizing, externalizing, and total problems results, the t-test reveals a significantly greater amount of problems in the clinical sample. These results are displayed in Table 2.

Table 2. Comparisons between children with SLI (clinical sample) and developmentally normal children (peer sample) on CBCL and C-TRF scales

	Samples								Significance of Difference t- test
	Clinical sample (SLI) (N=97)				Peer sample (N=60)				
	Mean	SD	Minimum	Maximum	Mean	SD	Minimum	Maximum	
CBCL: Mothers									
Emotionally Reactive	51.46	11.73	39.09	107.27	46.82	9.77	39.09	89.09	2.677**
Anxious/Depressed	54.69	11.42	37.39	106.96	51.01	11.13	37.39	98.26	1.992*
Somatic Complaints	52.41	11.87	40.53	114.21	49.21	10.49	40.53	82.63	1.861
Withdrawn	60.64	14.47	41.18	105.88	50.00	11.02	41.18	94.12	5.205**
Sleep Problems	47.40	9.00	38.33	80.00	48.06	8.51	38.33	71.67	-0.462
Attention Problems	58.44	13.3	36.84	115.79	46.75	7.86	36.84	68.42	6.712**
Aggressive Behavior	51.94	9.57	35.31	83.75	45.94	2.43	33.75	63.44	4.270**
Other Problems	38.53	3.42	33.26	55.19	35.79	13.18	32.19	42.89	5.845**
Internalizing Problems	116.77	59.42	14.73	37.74	52.77	7.91	37.74	116.77	2.939**
Externalizing Problems	63.12	53.69	9.64	34.55	45.82	6.31	33.25	63.12	5.564**
CBCL Total Problems	46.25	7.97	33.80	89.41	46.81	9.77	39.09	89.09	4.303**
C-TRF: speech therapists/ teachers									
Emotionally Reactive	54.62	14.31	42.11	116.84	50.33	9.32	42.11	95.79	2.271*
Anxious/Depressed	58.28	14.05	40.45	95.00	52.88	10.76	40.45	82.50	2.771**
Somatic Complaints	53.82	18.58	44.17	145.00	53.17	12.48	44.17	95.00	0.265
Withdrawn	54.17	12.5	41.25	97.24	48.38	9.39	41.25	83.45	3.295**
Attention Problems	57.05	13.05	40.27	92.35	48.58	7.93	40.27	71.76	5.057**
Aggressive Behavior	51.8	11.08	41.88	99.61	49.44	7.82	41.88	74.61	1.567
Other Problems	44.32	3.41	39.43	56.41	42.74	2.54	38.95	53.06	3.311**
Internalizing Problems	56.71	14.05	39.7	104.49	50.97	10.23	39.70	94.35	2.953**
Externalizing Problems	53.66	11.78	40.71	96.53	49.05	7.69	40.71	75.74	2.964**
Total Problems	56.35	12.42	39.43	56.41	50.06	8.22	38.95	81.77	3.812**

CBCL = Child Behavior Checklist, C-TRF = Caregiver-Teacher Report Form; * $p < 0.05$; ** $p < 0.01$

Speech therapists'/teachers' scores on C-TRF syndrome scales

Results showed a statistically significant greater amount of problems in the clinical sample compared to peers ($p=0.05$) in the following syndrome scales: *emotional reactivity* ($t=2.271$); *anxious/depressed* ($t=2.271$); *withdrawn* ($t=3.295$); *attention problems* ($t=5.057$); and *other problems* ($t=3.311$). Differences between samples were not found for *somatic complaints* and *aggressive behavior* syndrome scales. For internalizing, externalizing, and total problems results, the t-test reveals a significantly greater amount of problems in the clinical sample. These results are displayed in Table 2.

Comparison of scores on CBCL and C-TRF scales, assessed by mothers and speech therapists/teachers

Significant correlations (Table 3) were found between mothers' and speech therapists' scores on *withdrawn*, *attention problems*, *aggressive behavior*, and *externalizing problems* scales in children with SLI. Scores differed on *emotional reactivity*, *anxious/depressed*, *somatic complaints*, *internalizing problems*, and *total problems* scales in the same sample.

Significant correlations (Table 3) in the peer sample were found between mothers' and teachers' scores on *emotional reactivity*, *anxious/depressed*, *somatic complaints*, *withdrawn*, *attention problems*, *other problems*, *internalizing problems*, and the *total problems* scales ($p < 0.05$).

Emotional competence (EC) in mothers of children with SLI and mothers of developmentally normal children

Results of EC tests demonstrate that mothers of developmentally normal children have higher scores on the emotional expression scale ($p < 0.01$). Their total EC is higher compared to mothers in the clinical sample ($p < 0.01$). Scores on the recognizing emotion and emotional management scales do not differ between groups (Table 4).

Relationship between emotional competence (EC) of mothers in both samples and speech comprehension in children

Regression analysis was used in both groups to calculate the relationship between speech comprehension, which is an important component of SLI, and

individual factors of EC in mothers. We found a significant association between emotional expression and speech comprehension in children ($p < 0.01$, $\beta = 0.462$, $R^2 = 0.145$). The other variables were not found to be significantly related. In turn, using reduced regression analysis, we correlated only the significant variable, emotional expression, with speech com-

prehension and found an $R^2 = 0.134$. The adjusted $R^2 = 0.129$, $\beta = 0.367$, and $p < 0.001$. We compared both models and found $F = 0.97$, with a 2.153 degree of freedom, and $p = 0.38$. Therefore, as no difference was present between expanded and reduced models, we conclude that these models were appropriately applied.

Table 3. Correlations between mothers' and speech therapists'/teachers' scores on CBCL and C-TRF scales

Correlations between CBCL and C-TRF	Clinical Sample Children with SLI N=97		Peer Sample Children without SLI N=60	
	r	P	r	P
Emotionally Reactive	0.035	0.736	0.358**	0.005**
Anxious/Depressed	0.135	0.189	0.312*	0.015*
Somatic Complaints	-0.006	0.951	0.406**	0.001**
Withdrawn	0.247*	0.015*	0.363**	0.003**
Attention Problems	0.366**	0.000**	0.301*	0.020*
Aggressive Behavior	0.308**	0.002**	0.112	0.392
Other Problems	0.080	0.434	0.425**	0.001**
Internalizing Problems	0.050	0.626	0.404**	0.001**
Externalizing Problems	0.356**	0.000**	0.169	0.197
Total	0.056	0.589	0.364**	0.004**

CBCL = Child Behavior Checklist, C-TRF = Caregiver-Teacher Report Form; * $p < 0.05$; ** $p < 0.01$

Table 4. Comparisons of emotional competence (EC) scores on the ESCQ-45 in mothers of children from clinical and peer samples

	Samples								Significance of Difference t- test
	Mothers in Clinical Sample (N=97)				Mothers in Peer Sample (N=60)				
	Mean	SD	Minimum	Maximum	Mean	SD	Minimum	Maximum	
Emotional competence (ESCQ-45)									
Recognizing Emotion	51.46	11.73	39.09	107.27	46.82	9.77	39.09	89.09	2.677**
Expressing Emotion	54.69	11.42	37.39	106.96	51.01	11.13	37.39	98.26	1.992*
Managing Emotion	52.41	11.87	40.53	114.21	49.21	10.49	40.53	82.63	1.861
Total EC	60.64	14.47	41.18	105.88	50.00	11.02	41.18	94.12	5.205**

ESCQ-45 = Emotional Skills and Competence Questionnaire – 45; ** $p < 0.01$

Table 5. Correlations between emotional competence (EC) subscales on the ESCQ-45 in mothers and emotional and behavioral problems rated on CBCL scales in clinical (SLI) and peer samples

Correlation between EC and CBCL	Clinical Sample, Children with SLI (N=97)				Peer Sample, Children without SLI (N=60)			
	R.E.	E.E.	M.E.	TEC	R.E.	E.E.	M.E.	TEC
Emotionally Reactive	-0.110	-0.052	-0.204*	-0.139	0.240	-0.163	-0.077	-0.019
Anxious/Depressed	-0.164	-0.172	-0.299**	0.245*	0.191	0.021	0.087	0.101
Somatic Complaints	0.067	0.069	-0.069	0.039	0.170	-0.103	-0.096	-0.026
Withdrawn	-0.175	-0.077	-0.147	-0.164	-0.029	-0.304*	-0.138	-0.216
Sleeping Problems	-0.129	-0.051	-0.095	-0.115	0.461**	0.111	0.178	0.307*
Attention Problems	0.024	-0.060	-0.134	-0.054	0.072	0.081	0.270	0.078
Aggressive Behavior	-0.057	0.047	-0.096	0.700	0.070	-0.730	-0.162	-0.079
Other Problems	-0.113	0.047	-0.142	-0.082	0.244	0.052	0.069	0.148
Internalizing Problems	-1.400	-0.800	-0.223*	-0.171	0.269**	-0.115	-0.002	-0.048
Externalizing Problems	-0.390	-0.180	-0.125	-0.051	0.077	-0.039	-0.126	-0.045
Total Problems CBCL	-1.340	-0.029	-0.198	-0.140	0.280*	-0.060	0.025	0.090

ESCQ-45 = Emotional Skills and Competence Questionnaire - 45, R.E. = emotional recognition subscale, E.E. = emotional expression subscale, M. E. = emotional management subscale, TEC = total EC score; * $p < 0.05$; ** $p < 0.01$

Relationship between individual factors of emotional competence (EC) in mothers and behavior in children

In the clinical sample, a negative correlation was found between *emotional management* in mothers and *emotional reactivity*, *anxious/depression*, and *internalizing problems* scales (mothers' assessments). In the peer sample, a negative correlation was found between *recognizing emotion* in mothers and *sleep problems* in children. A negative correlation was found between *emotional expression* in mothers and *withdrawn* scores in children. All these correlations were statistically significant (Table 5).

DISCUSSION

Parents across cultures have the ability to spontaneously recognize when speech needs to be adjusted to improve communication with their children. They make use of a form of speech called "maternal speech", which amplifies the emotional content of speech (Fernald et al. 1989). This propelled our interest to investigate potential differences in emotional competence (EC) of mothers with children suffering from SLI, compared to mothers of developmentally normal children, especially with regard to their ability to express emotion. EC has garnered much interest as a skill necessary for optimal social and professional functioning; the relationship between mothers' EC and children's development of spoken language has yet to be considered. Young children are very dependent on their relationship with parents, and we believe that parents' EC is therefore a valuable point of investigation when considering the development of spoken language. We also wished to investigate whether the EC of mothers is associated with specific emotional/behavioral problems in children.

Our findings are consistent with previous research that demonstrates that children with SLI have more emotional and behavioral problems than children without SLI (Beitchman et al. 1996, Beitchman et al. 1992, Snowling et al. 2006, Silva et al. 1987). Indeed, a recent meta-analysis of controlled prospective studies demonstrated that SLI children experience clinically important increases in the severity of diverse emotional, behavioural, and ADHD symptoms (Yew & O'Kearney 2013). In the current study, according to assessments made by mothers, children with SLI were more emotionally reactive, anxious/depressed, withdrawn, aggressive, had more problems with attention, as well as other problems, compared to children without SLI; however, they did not have more problems with sleep, or more somatic problems.

It is interesting to note that mothers and speech therapists did not agree in their assessments of children with SLI on *anxious/depressed* and *emotionally reactive* scales. This speaks to the complex

nature of the impairment. According to speech therapists, children with SLI were more anxious/depressed, and emotionally reactive. We believe that this is not due to subjectivity or inaccuracy, and that this discrepancy provides information pertinent to the diagnosis of preschool children (Achenbach & Rescorla 2000, Wenar 1994). Circumstances inherent in the rehabilitative environment may provoke certain problematic behaviors that are otherwise unapparent at home and this may be reflected in discrepancies between mothers' and speech therapists' scores; the same principle applies for the reverse situation. The rehabilitative process in itself can be demanding, and children may feel stress sometimes from detailed examinations of their developmental progress and from parental expectations of this progress.

Emotions and behavior in children during early development are largely dependent on relations with adults. We should be cognizant of the fact that each child's impairment needs to be examined in the background of their developmental stage. Thus, some authors prefer a developmental model of diagnosis over a medical model. Agreement in scores on *withdrawn*, *attention problems*, and *aggression* scales in the clinical sample suggest that these symptoms are stable consequences of SLI and a delayed maturation. Conversely, less agreement on syndrome scales may reflect less stable symptoms from a medical diagnostic perspective, and represent developmental emotional and behavioral problems. This further suggest that emotion and behavior in children depend on, and need to be examined in, the context of environment and relations with others.

In the sample of developmentally normal children, mothers' and teachers' assessments correlated significantly except on *aggression* and *externalizing problems* scales. This is in accordance with a recent study demonstrating low levels of parent-teacher agreement for their ratings on the preschool children's behavior in a clinical sample with externalizing behavioral problems (Korsch & Petermann 2013). Agreement may be explained because children's relationships with teachers more closely resemble relationships with mothers. Again, relations with others prove to be of a great importance when examining emotion and behavior in children. Children play in kindergarten, just as they play at home. Disagreement in assessments of aggression may be the result of conflict between children vying for positions and attention in the kindergarten; aggression resulting from such conflict would not be apparent at home. Behavior does not occur in a vacuum, but in a specific milieu through interaction with others, and is therefore always a function of this milieu and other persons. Indeed, a recent study has shown that certain teacher characteristics (i.e., teacher-child conflict, same-gender child preference) can partly explain the discrepant parent-teacher reports (Berg-Niesen et al. 2012).

Our research demonstrated that mothers of children with SLI have lower total EC compared to mothers of children without SLI, primarily due to a lower ability to *express emotions*. Mothers of both groups did not differ in their ability to *recognize emotions* and *manage emotions*. Emotional expression may play an important role in the development of speech. Emotions impart importance to speech, encourage children to communicate, and ultimately contribute to children's speech comprehension. Children around 5 years of age are adept at decoding emotions, and are extremely sensitive to emotional signs that they perceive through vocal cues (Sauter et al. 2013). Therefore, communication imbued with emotion will encourage children to participate in the communicative process.

Lower scores on *emotional management* were positively associated with higher scores on *emotionally reactive* and *anxious/depressed* scales in children. Parents who regulate emotions poorly, e.g. aggression, will heighten emotional reactivity in their children, such that children may mimic the aggressive pattern in parents, or withdraw into themselves feeling anxious and depressed. Takšić et al. (2001) found that the emotional management factor predicts life satisfaction, while Aras et al. (2014) showed that mothers of children with SLI rate their health-related quality of life lower than mothers of developmentally normal children. Therefore, mothers of children with SLI who do not manage emotions well are more likely to be less satisfied with life, which may help explain increased emotional reactivity and anxiety/depression in their children. However, it should be noted that maternal personality is only one factor in a complex model of both direct and indirect influences on internalizing symptoms in preschool-aged children (Crawford et al. 2011).

High scores on *recognizing emotions* were positively associated with scores on the *sleeping problems* scale in developmentally normal children. Mothers who are overly sensitive and attentive to the slightest emotional changes in their children, can produce tension that may result in trouble relaxing and sleeping. Children may also feel insecure when separating from their mothers at bed time. Further, mothers with low scores on *emotional expression* were more likely to have children that are withdrawn. Mothers who do not express emotion seem withdrawn, and children may imitate them and adopt habits of solving problems themselves by withdrawing. These children will not learn to navigate novel situations and interactions with others by expressing their emotions. It is interesting to note that no correlation between recognizing emotion and sleep problems in children was found in the clinical sample. We believe there is an optimum amount of attention that should be given to each child, and an optimum sensitivity to recognizing emotion in each child. Developmentally normal children need more space to become independent, while children with SLI need more support to become independent.

We found a significant association between emotional expression in mothers and speech comprehension in both samples of children. This demonstrates that the impact of the environment, including mothers' expression of emotion, is to a degree important for the development of intellectual functions such as speech comprehension. Neuroimaging studies that reveal the functional connections between emotion, memory, attention, and other cognitive processes, support this claim (Deak 2011). This emphasizes the need for mothers to have the ability to express emotions, both for children with SLI and developmentally normal children. In early speech development, parents should motivate their children with affective interactions and encourage speech development with so-called "maternal speech". Affective speech motivates children to hold attention longer and to participate in communication. Speech suffused with emotion is more stimulating, dynamic, and contains more intonation, which helps children acoustically differentiate speech and hold attention. It seems that all of this contributes to speech comprehension. Maternal speech is based more on intonation than on words: heightened intonation will attract a child's attention, lowered intonation will communicate security, and short, cut-off messages, signal concern.

There are some limitations of this study that need to be mentioned. The clinical sample differed from the peer sample, such that it had more boys than girls, which corresponds to usual boy/girl ratio in our institution. We were unable to make comparisons between boys and girls, especially with regard to certain behaviors that are more vulnerable to sex, e.g., aggression. Boys tend to be more aggressive than girls, and the greater representation of boys in the clinical sample may have skewed scores on aggression scales. Mothers in the clinical sample had more risky pregnancies, preterm and post-term deliveries, and perinatal problems. The clinical sample had more children with siblings, while the peer sample had more children without siblings. Differences in parental education were also apparent between samples. Anamnestic and demographic data reveal that children in the clinical sample were more diverse.

This research did not include assessments made by fathers, and cannot completely answer how the EC of parents is related to children's emotions and behaviors. As the traditional division in parental roles is dissolving, and fathers increasingly assume maternal roles during early childhood, these changes must be considered in the context of child development. This demonstrates the need for the relationship between EC of parents and children to be investigated further. In addition, the EC of speech therapists and teachers should be investigated, as these individuals have important and defined roles in child development. We did not measure EC of speech therapist because of the presumed influence of socially desirable response style. However, this estimation should be included in future studies.

CONCLUSION

The findings of this study demonstrate that mothers of children with specific language impairments (SLI) are less emotionally competent, due to a lower ability to express emotion, and that their children have more behavioral and emotional problems than developmentally normal children. There was a significant association between mothers' ability to manage emotions, and emotional reactivity and anxiety/depression in children with SLI. Mothers' expression of emotion is important for speech and language development in all children, and there is an ideal balance of emotion and attention necessary for needs of children with SLI and children without SLI. Our results suggest that SLI should not only be viewed through a medical model of diagnosis, but a developmental model as well, because a child's behavior is dependent on his or her relation with the environment. Work must be done with parents to enhance their emotional competence with the hope of reducing emotional and behavioral problems in children with SLI.

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References

1. Achenbach TM, Edelbrock C: *Manual for the Child Behavior Checklist and Revised Child Behavior profile*. University of Vermont Department of Psychiatry, Burlington, 1983.
2. Achenbach TM, McConaughy SH, Howell CT: *Child/adolescent behavioral and emotional problems: Implication of cross-informant correlations for situational specificity*. *Psychol Bull* 1987; 101:213-232.
3. Achenbach TM, Rescorla LA: *Manual for ASEBA Preschool Forms and Profiles: An integrated system of multi-informant assessment*. University of Vermont Department of Psychiatry, Burlington, 2000.
4. Aras I, Stevanović R, Vlahović S, Stevanović S, Kolarić B, Kondić L: *Health related quality of life in parents of children with speech and hearing impairment*. *Int J Pediatr Otorhinolaryngol* 2014; 78:323-329.
5. Batshaw ML: *Children with Disabilities*, 5th edition. Brookes Publishing Company, Baltimore, 2002.
6. Beitchman JH, Hood J, Inglis A: *Familial transmission of speech and language impairment: a preliminary investigation*. *Can J Psychiatry* 1992; 37:151-156.
7. Beitchman JH, Wilson B, Brownlie EB, Walters H, Inglis A, Lancee W: *Long-term consistency in speech/language profiles: II. Behavioral, emotional, and social outcomes*. *J Am Acad Child Adolesc Psychiatry* 1996; 35:815-825.
8. Berg-Niesen TS, Solheim E, Belsky J, Wichstrom L: *Preschoolers' Psychosocial Problems: In the Eyes of the Beholder? Adding Teacher Characteristics as Determinants of Discrepant Parent-Teacher Reports*. *Child Psychiatry Hum Dev* 2012; 43:393-413.
9. Bilać S: *Relation between some cognitive variables and some aspects of maladjustment in pre-school children*. *Rev Psychol* 1996; 3:55-58.
10. Bishop D, Norbury CF: *Speech and language impairments*. In Thapar A, Rutter M, Bishop D, Pine D, Scott SM, Stevenson J, Taylor E (Eds): *Rutter's Child and Adolescent Psychiatry*, 782-801. Oxford, UK, 2008.
11. Botting N: *Non-verbal cognitive development and language impairment*. *J Child Psychol Psychiatry* 2005; 46:317-326.
12. Crawford NA, Schrock M, Woodruff-Borden J: *Child Internalizing Symptoms: Contributions of Child Temperament, Maternal Negative Affect, and Family Functioning*. *Child Psychiatry Hum Dev* 2011; 42:53-64.
13. Deak A: *Brain and emotion: Cognitive neuroscience of emotions*. *Rev Psychol* 2011; 18:71-80.
14. Fernald A, Taeschner T, Dunn J, Papousek M, De Boysson-Bardies B, Fukui I: *A cross-cultural study of prosodic modification in mothers' and fathers' speech to preverbal infants*. *J Child Lang* 1989; 16:477-501.
15. Goleman D: *Working with Emotional Intelligence*. Bantam Books, New York, 2000.
16. Guberina P, Asp CW: *The verbo-tonal method for rehabilitating people with communication problems*. World Rehabilitation Fund, International Exchange of Information in Rehabilitation, New York, 1981.
17. Guerin D, Gottfried AW: *Minnesota child development inventories: predictors of intelligence, achievement and adaptability*. *J Pediatr Psychol* 1987; 12:595-609.
18. Korsch F, Petermann F: *Agreement Between Parents and Teachers on Preschool Children's Behavior in a Clinical Sample with Externalizing Behavioral Problems*. *Child Psychiatry Hum Dev* 2013; DOI: 10.1007/s10578-013-0430-6.
19. Kwok SYCL: *The moderating role of emotional competence in suicidal ideation among Chinese university students*. *J Adv Nurs* 2014; 70:843-854.
20. Mayer JD, Stevens A: *An emerging understanding of the reflective (meta-) experience of mood*. *J Res Pers* 1994; 28:351-373.
21. Norbury C, Paul R: *Speech, Language, and Social Communication Disorders*. In Rutter's Child and Adolescent Psychiatry. 6th edition. Blackwells, 2013.
22. Piaget J: *The Child's conception of physical causality*. Kegan Paul, London, 1930.
23. Sauter DA, Panattoni C, Happé F: *Children's recognition of emotions from vocal cues*. *Br J Dev Psychol* 2013; 31:97-113.
24. Silva PA, Williams S, McGee R: *A longitudinal study of children with developmental language delay at age three: later intelligence, reading and behaviour problems*. *Dev Med Child Neurol* 1987; 29:630-640.
25. Smith DD, Tyler NC: *Introduction to Special Education: Making a Difference*, 7th edition. Pearson, London, 2009.
26. Snowling MJ, Bishop DV, Stothard SE, Chipchase B, Kaplan C: *Psychosocial outcomes at 15 years of children with a preschool history of speech-language impairment*. *J Child Psychol Psychiatry* 2006; 47:759-765.
27. Takšić V: *Validation of the Emotional Intelligence Construct*. Doctoral Dissertation. University of Zagreb Department of Psychology, Zagreb, Croatia, 1998.
28. Takšić V: *Emotional competence (intelligence) questionnaires. The collection of psychological instruments*. University of Zadar Department of Psychology, Zadar, Croatia, 2001.

29. Takšić V, Jurin Ž, Cvenić S: *Operationalization and factor-analytic study of the emotional intelligence construct. Psychol Topics* 2001; 8:95-109.
30. Vargha-Khadem F, Gadian D, Copp A, Mishkin M: *FOXP2 and the neuroanatomy of speech and language. Nat Rev Neurosci* 2005; 6:131–138.
31. Vygotsky L: *Thought and speech. Nolit, Beograd, Yugoslavia*, 1983.
32. Wenar C: *Developmental psychopathology: from infancy through adolescence*, 3rd edition. McGraw-Hill Education, Berkshire, 1994.
33. Yew SG, O'Kearney R: *Emotional and behavioural outcomes later in childhood and adolescence for children with specific language impairments: meta-analyses of controlled prospective studies. J Child Psychol Psychiatry* 2013; 54:516-524.

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