Relationships Between Parent-rated Everyday Behavior and Cognitive Test Performance in 6–17-year-old Finland-Swedes

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Master Thesis in Psychology

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Subject: Psychology

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Abstract:
The FTF-R survey is a parental questionnaire widely used in child clinical assessments in the Nordic countries. The survey focuses on everyday functions of children. Information from parental surveys is often used alongside cognitive test scores to more comprehensively characterize a child's functioning. Previous research on clinical samples has suggested that higher cognitive test performances are associated with fewer parent-rated difficulties in the FTF-R. However, no previous studies have examined whether FTF-R is sensitive enough to show these associations in non-clinical populations. The current study assessed 168 typically developing Finland-Swedes aged 6–17 years with the FTF-R. This was a follow-up of the larger FinSwed Study that assessed cognitive abilities of Finland-Swedish children using the Swedish versions of the WISC-V, WPPSI-V, and NEPSY-II. The main aim of this study was to examine the relationships between cognitive test performances on the most commonly used psychological tests in Finland and parental ratings from the FTF-R. A secondary aim of the current study was to investigate how Finland-Swedish children were rated on the FTF-R in comparison to the official Danish norms. Results from logistic regression analysis displayed few and weak associations between cognitive test scores and FTF-R ratings. One exception was that Wechsler Visuospatial Index scores significantly predicted fewer difficulties in the FTF-R Perception domain. The parent ratings largely corresponded with the official FTF-R norms gathered in Denmark, but presented significantly less difficulties on FTF-R subdomains related to learning and perception. These findings suggest that the FTF-R seems applicable in a Finland-Swedish setting. However, the FTF-R might not be suitable in explaining how subtle difficulties evident in cognitive tests operate in everyday life in typically developing children.

Keywords: FTF-R, the WISC-V, WPPSI-IV, NEPSY-II, typically developing children

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ÅBO AKADEMI – FAKULTETEN FÖR HUMANIORA, PSYKOLOGI OCH TEOLOGI

Ämne: Psykologi

Författare: Charlotta Ohls

Titel: Föräldraskattad vardagsfunktion hos finlandssvenska 6-17 åringar och dess samband med kognitiva testresultat

Handledare: Johanna Rosenqvist, Anu Haavisto, Matti Laine

Abstrakt: Frågeformuläret Fem till Femton (FTF-R) ett föräldraformulär som används mycket inom barnkliniska utredningar i Norden. Formuläret fokuserar på barns vardagsfunktioner. Information från föräldraformulär används ofta tillsammans med kognitiva testpoäng för att få en helhetsbild av ett barns fungerande. Tidigare forskning med kliniska sampel har påvisat att höga poäng på kognitiva test korrelerar med mindre föräldraskattade svårigheter på FTF-R. Dock har ingen tidigare studie undersökt huruvida FTF-R är tillräckligt känslig för att uppvisa dylika samband även hos barn med typisk utveckling. Denna studie undersökte detta med ett sampel på 168 finlandssvenska barn och ungdomar i åldrarna 6–17 år. Denna studie var en uppföljningsstudie av forskningsprojektet the FinSwed Study, som utredde finlandssvenska barns kognitiva förmågor i de svenska versionerna av WISC-V, WPPSI-IV och NEPSY-II. Ett andra syfte med denna studie var att utreda hur finlandssvenska barn skattas på FTF-R-formuläret i jämförelse med de officiella danska normerna. Resultat från logistiska regressionsanalyser påvisade få och svaga samband mellan kognitiva testresultat och FTF-R-skattningar. Dock predicerade ett högt Visuospatialt Index signifikant färre svårigheter i perceptionsdomänen i FTF-R. Föräldraskattingarna på FTF-R i denna studie överensstämde i stora drag med de danska normerna. Dock skattades finlandssvenska barn ha mindre svårigheter relaterade till inlärning och perception än det danska normsamplet. Dessa resultat understryker att FTF-R verkar fungera i ett finlandssvenskt sammanhang. Dock verkar inte FTF-R kunna förklara hur relativa svårigheter som uppkommer i kognitiva test ter sig i vardagen hos barn med typisk utveckling.

Nyckelord: FTF-R, WISC-V, WPPSI-IV, NEPSY-II, barn med typisk utveckling

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Relationships Between Parental-rated Everyday Behavior and Cognitive Test Performance in 6-17-year-old Finland-Swedes

Parental rating of everyday behavior, alongside standard cognitive assessment tools, is an important and widely used assessment method in child clinical psychological practice. Using parental reports of children's behavior in everyday life is a cost-effective way to for the clinician to acquire information about children's functioning in everyday contexts that cannot be evaluated at the clinic. However, although parental or informant ratings and cognitive tests can theoretically evaluate the same cognitive constructs, previous research offers no strong support for an association between ratings of everyday functions and cognitive test performance. For instance, there is little evidence supporting that informant ratings of everyday functions regarding executive functions and cognitive test results of executive functions share an association (Toplak et al., 2012, McAuley et al., 2010). However, moderate associations between informant ratings and test performance have been observed for memory functions (Chaytor & Schmitter-Edgecombe., 2003).

The present study focused on the Five to Fifteen questionnaire – revised (FTF-R) (Kadesjö et al., 2017), a commonly utilized parental questionnaire in the Nordic countries, covering a broad range of areas in child development. Areas of child development queried in FTF-R are divided into domains covering similar constructs as in standard cognitive tests, e.g., memory, language, and executive functions. For FTF-R, previous literature has indicated an association between the parent-rated scores and cognitive test scores in groups of low birthweight children, children with ADHD, learning disorders, autism spectrum disorder, or emotional disorders (Koivisto et al., 2012; Lind et al., 2009; Korkman et al., 2004; Trillingsgaard et al., 2004). However, no study to date has explored the relationships between parental reports obtained through the FTF-R and cognitive test performance in a non-clinical sample. Knowing how the questionnaire relates to cognitive test results in typically developing children is important, as it sheds light on the sensitivity of FTF-R in finding more subtle deviances from the normal variation. In the present study, the relationships between FTF-R and performance on the cognitive tests WISC-V, WPPSI-IV, and NEPSY-II was explored. Moreover, this study addressed a normative issue by investigating how parents of typically developing Finland-Swedish children rated their children on FTF-R compared to the official Danish norms.

Informant Ratings of Everyday Functions in Children

In clinical psychological assessments, cognitive test results are usually combined with information about the child's functioning at home or in the daycare/school. Therefore,

information on how cognitive tests relate to the everyday life of individuals is essential. Questionnaires and informant ratings can be seen as an ecological measurement of everyday functions, and the concept of cognitive functions in daily life have in earlier literature been operationalized through self-reports and informant ratings (Burgess et al., 1998; Ready et al., 2001).

Informant questionnaires are extensively used in clinical practice (Benson et al., 2019, Egeland et al., 2017). In the Nordic countries, questionnaires concerning cognitive functions are the second most administered type of questionnaires after rating scales of emotional symptoms (Egeland et al., 2017). The most commonly utilized parental questionnaire in child clinical assessments in Swedish-speaking Finland is the FTF-R (Rosenqvist et al., 2022). The questionnaire covers a broad range of aspects related to child development. According to Rosenqvist et al. (2022), the FTF-R is currently used more than other commonly utilized informant scales concerning children such as the Strengths and Difficulties Questionnaire (SDQ; Goodman, 1997) and the Child Behaviour Checklist (CBCL; Achenbach & Rescorla, 2001). Compared to the SDQ and CBCL, the FTF-R focuses on a broader range of constructs, ranging from cognitive functions to social skills and psychological problems. However, in the current study, the focus will be on the cognitive domains of FTF-R that are comparable with the measured cognitive tasks, that is, Motor skills, Executive functions, Perception, Memory, Language, and Learning.

Typical Cognitive Tests in Child Assessments

The Weschler Intelligence Scale for Children (WISC-V; Wechsler, 2016a) and Wechsler Preschool and Primary Scale of Intelligence (WPPSI-IV) (Wechsler, 2014a,) are widely used cognitive tests (Piotrowski, 2017, Rabin et al., 2016) that evaluate children's cognitive performance on a broad set of cognitive abilities. The WISC-V and WPPSI-IV are commonly used in the Nordic countries (Egeland et al, 2016). Furthermore, in Finland, versions of the WISC and WPPSI, along with the NEPSY (Korkman, Kirk & Kemp, 2011, Korkman, Kirk & Kemp, 2008) are all within the top ten range of used psychological tests in Finland (Kuuskorpi, 2012, Rosenqvist et al, 2022). The present study employed the Swedish versions of the WISC-V, WPPSI-IV, and seven subtests from NEPSY-II.

NEPSY-II and Weschler Scales

The Wechsler tests WPPSI and WISC are intended to measure an individual's general cognitive capacity, or intelligence (Flanagan & Alfonso, 2017). Intelligence has consistently been linked with later academic achievements (Roth et al., 2015). The cognitive abilities measured through WPPSI-IV and the WISC-V are suggested to reflect an overall capacity of

the brain, and white matter integrity in children has been shown to be linked to high scores on the WISC (Kocevar et al., 2019). The NEPSY-II, on the other hand, is based on the theories of Alexander Luria, and the Lurian notion of specific cognitive functions having specific neural correlates (Korkman, 1998) and is thus designed to measure more specific cognitive functions (Smedler & Tideman, 2009). Therefore, it is not uncommon for typically developing populations to achieve low scores on specific tasks of the NEPSY-II (Brooks et al., 2010), despite their general cognitive ability being normative.

Relationships Between Cognitive Test Performance and Informant Ratings of Everyday Functions

Previous studies concerning the association between cognitive test performance and measures used to obtain information on everyday functions have reported mixed findings with some evidence for informant ratings of memory functions being associated with cognitive tests and neuropsychological tests of memory (Chaytor & Schmitter-Edgecombe., 2003). However, there are little evidence supporting an association between performance measures and rating scales of executive functions (Toplak et al., 2013; McAuley et al., 2010). Studies on the utility of rating scales have focused mainly on clinical samples.

In a review by Chaytor & Schmitter-Edgecombe (2003), neuropsychological test results for several cognitive constructs (memory, language, executive functions, perceptual skills, and motor skills) were compared to rating measurements for everyday functions. Moderate associations were presented, with an inclination towards stronger associations between outcome measures that theoretically corresponded with the measured cognitive functions. Most associations were found for memory functions. In a review by Toplak et al. (2013), 20 studies investigating associations between executive function tests and ratings of executive function in both typical and clinical samples were reviewed. Small to modest associations were found in only 24% of the correlational analyses of the studies, with the remaining associations not reaching significance. Another review investigating parent and teacher ratings of executive function in relation to performance measures of executive function presented null findings, indicating that informant ratings and performance measures are not comparable tools in assessing the cognitive construct of executive functions (McAuley et al., 2010). Although there seems to exist no evident relationship between performance measures and rating scales in terms of executive functions, rating scales can still be a valuable contributing tool in understanding everyday function of individuals, and hence are helpful tools in clinical assessments (Isquith et al., 2013). Moreover, information from parental-

ratings can aid clinicians in differentiating between diagnoses (Dewey et al., 2003; Dvorsky et al., 2016).

In sum, previous literature concerning the relationships between cognitive test performance and informant ratings does not provide strong support for the assumption that these two methods cover the same cognitive constructs. However, the instruments at focus here (WISC-V, WPPSI-IV, NEPSY-II, and FTF-R) were not employed in the aforementioned studies.

The Relationships Between Cognitive Test Performance and the FTF Questionnaire

Studies investigating how cognitive test performance relates to FTF scores are somewhat scarce, and have been undertaken with the original FTF (Kadesjö et al, 2004). Moreover, the studies have mainly been conducted using clinical samples, although some studies present a control group, a subsample of typically developing children, or children with sub-clinical test scores (Koivisto et al., 2012; Korkman et al., 2004; Lind et al., 2009; Trillingsgaard al., 2004). These previous studies indicate an overall negative relationship between cognitive test scores and FTF-R scores, i.e., higher cognitive test scores were associated with a lower FTF score that indicates less problems. See Table 1 for results from previous studies and clinical information of sample groups studied.

Furthermore, it seems that theoretically corresponding domains (e.g., FTF motor skills and NEPSY-II sensorimotor function) to some extent share an association (Lind et al., 2009; Koivisto et al., 2012) and that the measured constructs may thus overlap. Koivisto et al (2012) demonstrated more domain-specific correlations between NEPSY-II and FTF domains when analysing a subsample of children with IQ > 85, whereas associations became more widespread and less domain-specific when adding children with IQ < 85. As various intercorrelations are more likely to be seen in a sample with greater global impairments, it could be that in a higher-functioning sample, more specific associations between theoretically corresponding domains might occur.

However, the reported associations, both between theoretically corresponding and non-corresponding domains, have not been consistent in all previous studies (Korkman et al., 2004), nor do the same domains coherently correlate across previous studies. Furthermore, the strength of statistically significant correlations in previous studies ranged from r = -.018 to r = -.049. Although the studies by Korkman et al. (2004), Lind et al. (2009), and Koivisto et al. (2012) were conducted on clinical samples with broadly similar sample sizes, the results display some incoherency, which may be explained by variability in the chosen NEPSY-II subtests that the FTF has been compared to, as well as in differences in sample characteristics.

Only one study has to our knowledge explored the association between FTF and general cognitive capacity measured with the WISC-III index scores. Significant associations between the indexes and theoretically corresponding FTF domains were found in a clinical sample (Trillingsgaard et al., 2004). The results imply that corresponding constructs from FTF may show associations with cognitive constructs measured by WISC. However, no study to date has examined the associations between FTF-R and the newest versions of the WISC or WPPSI, nor has these relationships been examined in typically developing children. Furthermore, the aforementioned studies utilized the first version of the FTF (Kadesjö, et al 2004), and its norms, whereas the current study focuses on the FTF-R that was validated and standardised with new norms in 2015 (Lambek & Trillingsgaard, 2015).

Table 1

Previous Studies Concerning the Relationships Between FTF and Cognitive Measurements

Study	Clinical sample	Reference group	FTF-domains[a]	Cognitive tests	Method of analysis	Statistically significant associations*
Koivisto et al (2012)	Entire sample: Extremely low birth weight children N= 121 Subsample: ELWB children with IQ>85 N=76		Motor skills -fine motor skills, Executive function, Memory & Language	NEPSY-II domain and subtests: Sensorimotor (Imitating Hand Positions, Visuomotor Precision), Attention/Executive Functioning (Animal Sorting, Auditory Attention, Inhibition) Memory/Learning (Memory for Designs, Narrative Memory, Word List Interference), Language (Comprehension of Instructions, Phonological Processing, Word Generation) & Visuospatial Processing (Arrows, Design Copying, Geometric Puzzles).	Spearman´s correlation coefficient	Entire sample: NEPSY II Attention/ Executive functioning , Language, Memory/ Learing & Visuospatial Processing x all FTF domains NEPSY II Sensorimotor x FTF fine motor skills, Language, Memory and Perception domain ELBW IQ >85 group: NEPSY II Attention/Executive functioning x all FTF domains NEPSY sensorimotor x FTF fine motor domain NEPSY II Visuospatial Processing x FTF Perception domain
Lind et al (2009)	Very low birth weight children N=97	Preterm born children N= 169	Executive, function, Language, Memory & Motor skills	NEPSY-II domain and subtests: Attention/Executive Functioning (Auditory Attention, Visual Attention, Inhibition), Language	Multiple regression (only undertaken for clinical group)	NEPSY-II Attention/ Executive functioning x all FTF domains NEPSY-II Language x FTF Language

				(Speeded Naming, Phonological Processing, Comprehension of Instructions) , Memory/Learning (Narrative Memory, Memory for Designs, Word List Interference) & Sensorimotor (Visuomotor Precision, Design Copy)		NEPSY II Memory x FTF Language and Memory NEPSY II sensorimotor x FTF Executive functions, Language & Motor skills
Korkman et al (2004)	” Risk group”: children scoring above 90th percentile on an FTF developmental domain N= 90	Children not scoring above 90th percentile on an FTF developmental domain N= 30	Fine motor skills, Executive functions, Perception, Memory & Language	NEPSY domain and subtests: Sensorimotor (Imitating Hand Positions, Visuomotor Precision, Finger Discrimination) , Attention/ executive functioning (Auditory Attention and Response Set, Visual Attention, Statue), Visuospatial Processing (Design Copying, Arrows), Memory/Learning (Memory for Faces, Memory for Names, Narrative Memory) and Language (Phonological Processing, Comprehension of Instructions, Speeded Naming, Repetition of Nonsense Words)	Pearson’s correlation (only undertaken for risk group)	NEPSY II Attention/ Executive functioning, Language and Sensorimotor x all FTF domains NEPSY II Visuospatial Processing x FTF fine motor and Perception domain NEPSY II Memory x FTF Executive function, Perception, Memory and Language domain
	Clinical group:		Motor skills,	WISC III	Pearson’s correlation:	FTF Learning x FSIQ FTF Language x VIQ and VCI

Trillingsgaard et al (2004)	ASD, MR, TR, ADHD, CD, ED, SLD N = 155	Executive functions, Perception, Memory, Language, Learning	(FSIQ, VIQ, PIQ, VCI, POI, FDI)	FTF Perception x PIQ and POI FSIQ x FTF Language

Note. ELWB = Extremely Low Birth Weight, ASD = autism spectrum disorder, MR = mental retardation, TR = Tourettes syndrome, ADHD = Attention-Deficit/Hyperactivity Disorder, CD = conduct disorder, ED = emotional disorders (depression and anxiety), SLD = specific learning disorder. FSIQ = Full-Sale IQ, VIQ = Verbal IQ, PIQ = Performance IQ, VCI = Verbal Comprehension Index, POI, Perceptual Organization Index, FDI = Freedom from Distractibility Index.

[a] The presented studies are conducted using the first version of the Five to Fifteen questionnaire. The current study used the revised version, FTF-R.

* All associations presented had a p-value of <.05.

Aims of the Study

The main aim of the present study was to examine the relationships between commonly used children's cognitive tests and the FTF-R in 6–17-year-olds.The Wechsler scales and NEPSY or NEPSY-II, as well as the FTF-R, are among the most used psychological instruments when assessing children in Finland (Kuuskorpi, 2012; Rosenqvist et al., 2021). Results from previous studies display an overall negative association, suggesting that higher cognitive test performance indicates less difficulties on the FTF. However, earlier findings are derived from studies on clinical samples. The relationship between cognitive test performance and parental rated everyday behavior in the FTF-R in a non-clinical population remain unclear. Based on previous studies with clinical samples, it was hypothesized that higher cognitive performance would relate to less difficulties in everyday life as reported by parents. Moreover, few associations between non-corresponding domains were expected in the present typically developing sample, in line with more domain-specific associations found by Koivisto et al (2012) when a subgroup of children with IQ>85 was analyzed. Moreover, since the current study sample consisted of typically developing children, with expected low variability in functioning, it was hypothesized that weaker correlations would emerge in this study than in earlier studies with clinical samples.

The participants in the current study were typically developing Finland-Swedish 6–17-year-olds. In Finland, 5.2 % of the population are registered as having Swedish as their first official language (statistics, Finland). However, many Finland-Swedes are simultaneous bilingual Swedish and Finnish speakers. No previous studies have examined how this minority linguistic group performs on the FTF-R. Therefore, a subsidiary aim of the study was to investigate the performance of Finland-Swedish children on the FTF-R as compared to the official Danish norms (Lambek & Trillingsgaard, 2015). In accordance with the normative data reported in the manual provided by 5-15.org (Manual 5-15, 2018), we hypothesized that 10% of the children would score above a clinical threshold on the FTF according to their norm groups.

Method

Participants

The current study sample consisted of 168 typically developing Finland Swedish children. The participants spoke either Swedish as their first language or were bilingual Swedish- and Finnish-speakers (see table 2 for demographic information about the participants). The sample included children from a larger study, The FinSwed Study, where

parents filled out the FTF-R questionnaire later as a follow-up study. Prior to the current study, the participants undertook a cognitive assessment within the scope of The FinSwed Study. At the time of the cognitive assessments, the participants' age ranged from 5–16 years (M= 9.08, SD = 3.45), and when the FTF-R data was collected from 6–17 (M = 10.12, SD = 3.36). The FinSwed Study investigated the performance of Swedish-speaking Finnish children on the Swedish versions of WPPSI-IV and the WISC-V, as well as selected subtests from the NEPSY-II. The FinSwed study obtained data from 276 children and adolescents. Children who received any psychiatric, phoniatric, or neurological health care were excluded, as well as children diagnosed with some form of learning disability or a neurological, developmental, neuropsychiatric, or psychiatric disorder. Moreover, prematurely born children, children with non-corrected hearing or visual impairments, and children with any ongoing medication due to psychiatric or neurological disorders were excluded. Lastly, children who recently had been or were to be assessed with either the WISC-V, WPPSI-IV, NEPSY-II were excluded (see appendix A for exclusion process of the FinSwed study).

Table 2

Sample Demographics and Cognitive Test Performance (WISC-V and WPPSI-IV)

	Count (n)	%
Background characteristics		
Sex		
Boys	85	50.6
Girls	83	49.4
Language		
Monolinguals	97	57.7
Bilinguals	71	42.3
Maternal education level		
1	35	20.8
2	50	29.8
3	83	48.4
Paternal education level		
1	59	35.2
2	38	22.6
3	69	41.1
Missing	2	1.2
Regional type		
City	95	56.5
Rural	37	22.0
Urban	36	21.4
Region		
Capital region	46	27.4

Uusimaa	26	15.5	
Region of Turku	20	11.9	
Ostrobothnia	76	45.2	
Test version used in cognitive assessments			
WISC-V	118	70.2	
WPPSI-IV	50	29.0	
Cognitive test scores			
WISC-V	mean	SD	range
Verbal Comprehension index	103.31	12.98	78-146
Visuospatial Index	107.20	14.88	78–155
Fluid Reasoning Index	106.53	13.59	72–131
Working Memory Index	106.60	12.86	76–132
Full Scale IQ	106.7	12.43	77-137
WPPSI-IV			
Verbal Comprehension Index	106.56	18.34	60–147
Visuospatial Index	107.08	11.37	73–133
Fluid Reasoning Index	106.88	14.11	74–134
Working Memory Index	104.94	12.94	75–141
Processing Speed Index	106.80	16.57	81–150
Full Scale IQ	108.12	14.5	78-134

Note. Parental education was divided into three levels: Level 1: vocational education, upper secondary education, or lower, Level 2: higher vocational education or Bachelor´s degree, Level 3: Master´s or Doctoral degree.

Procedure

The current study is a substudy of The FinSwed Study. Ethical permission for The FinSwed Study was granted by the Ethical Review Board in the Humanities and Social and Behavioral Sciences at the University of Helsinki in June 2019. An additional permission for obtaining data with the FTF-R questionnaire for the current study was granted in August 2020. Permission to collect cognitive data was further granted from participating municipalities. Moreover, additional permission was granted from principals of the daycare centers and schools. In addition, written permission was obtained from the parents. Adolescents at the age of fifteen and over gave their written consent.

In The FinSwed Study, a stratified sampling procedure was undertaken according to the geographic distribution of Swedish-speaking elementary school students in Finland. The aim was to obtain representative data from the Swedish-speaking areas of Finland, except for the Åland islands, from which no participants were partaking. Municipalities with an overall educational level representative of the whole geographic area were chosen. Within the selected municipalities, psychologists administering the assessments

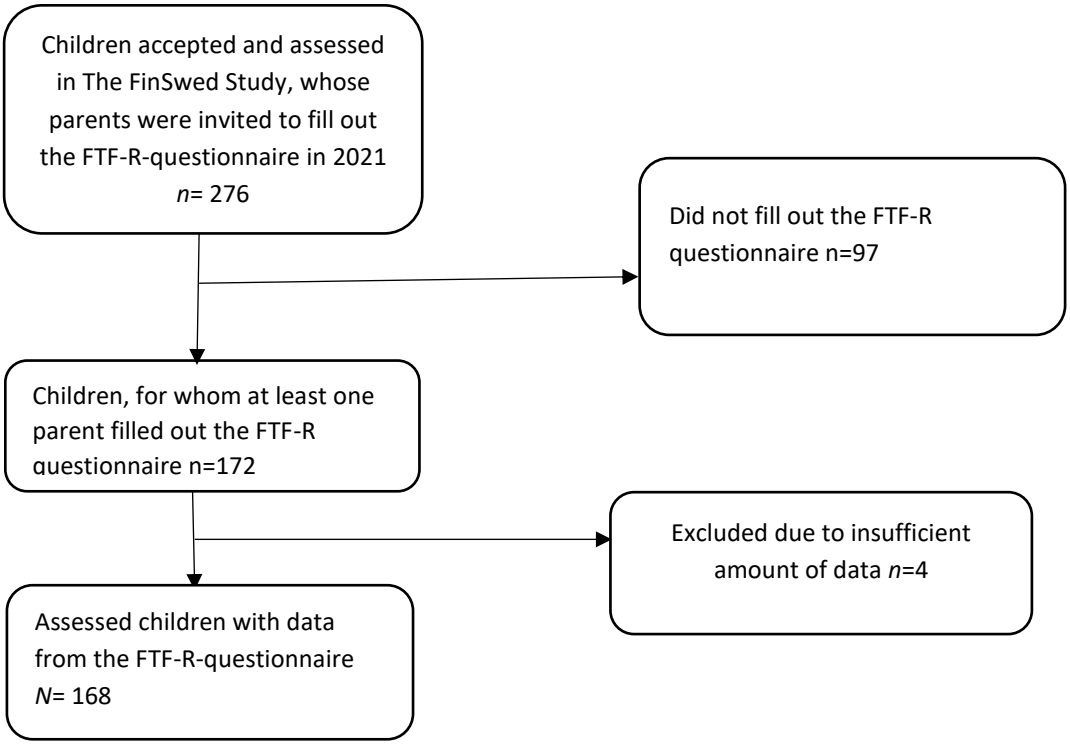
in the FinSwed study chose schools and daycare centers from which to gather participants. The selection of participants was executed through a randomized sampling procedure, where every fourth boy and girl, starting from the second name on the list, was selected. If a child met any of the exclusion criteria, or if the parents of the child did not consent to their participation, the following child on the list was selected instead.

The participants were assessed either using the WISC-V or WPPSI-IV (see Table 2) as well as seven selected subtests from NEPSY II. Clinical psychologists or trained research assistants administered the assessments. The assessments were carried out between October 2019 and February 2021. The participants were assessed at a mean of 2.86 separate sessions (range 1–6), with a mean duration of 2.76 hours. Due to the societal restrictions following the COVID–19 pandemic, the time interval between the assessments was for 11 children (6.5%) prolonged, prompting a recalculation of these participants' test ages for subtests with delayed administration. The 11 children for whom the assessments were prolonged had a mean age of 10 years (*SD*=4.03) and 6 months in the first assessment session, and a mean age of 10.55 year (*SD*=3.91) and 4 months by the end of assessments. In 30 of the altogether 168 assessments (19%), the test administrator wore a face mask.

Between April 2021 and August 2021, all families participating in The FinSwed Study (n = 275) were invited via e-mail to fill out the FTF-R questionnaire. Parents were informed that participation was voluntary. Furthermore, the parents were informed that the data obtained by the FTF-R questionnaire were to be linked with the cognitive test performance data gathered in The FinSwed Study. A total of 533 e-mails were sent out to all parents in participating families that had given their contact information. Reminder e-mails were sent out once every two following months following the first e-mail. A total of 179 questionnaires were returned by the parents of the participants, thus generating a response rate of 33.5%. However, for 168 children (61%), at least one of the parents returned the FTF questionnaire. Both parents were encouraged to fill out the questionnaire, although one parental response was considered sufficient for analyses. Seven pairs of duplicates were returned, i.e., cases where both parents had filled out the questionnaire. In cases of duplicates, the mean response was calculated and used as one single response. Responses obtained from mothers made up 75% of the total responses. See Figure 1 for a flowchart of the data gathering concerning the FTF-R data.

Figure 1

Flowchart of the Exclusion Process for the Current Substudy



Measures

WISC-V

The WISC-V is a widely used test assessing cognitive ability in children aged 6:0 to 16:11 (Wechsler, 2016a). Cognitive ability is divided into five specific domains or *indexes*. The indexes are labeled Verbal Comprehension Index (VCI), Visuospatial Index (VSI), Fluid Reasoning Index (FSI), Working Memory Index (WMI), and Processing Speed Index (PSI). The indexes follow a normal distribution, with a mean score of 100 and a standard deviation of 15. Each index consists of several subtests that measure varying areas of a cognitive construct on each domain. The performance on each subtest is compared to a normative performance score of the appropriate age group. The mean score on each subtest is 10, with a standard deviation of 3. The test scores obtained from the study sample were compared to a Scandinavian normative sample (N=660, consisting of children from Norway, Denmark, and Sweden (Weschler, 2016b).

WPPSI-IV

The WPPSI-IV is a test assessing cognitive ability in children aged 2:6 to 7:7 (Wechsler, 2014a). The measured cognitive capacities are organized in indexes following the same structure as the WISC-V. The Swedish version of WPPSI-IV was used in The FinSwed Study.

The Swedish version of WPPSI-IV has a Scandinavian, non-clinical normative sample of 463 children from Sweden, Norway, and Denmark (Wechsler, 2014b).

Modifications of the Measures

In The FinSwed Study, the Swedish versions of the WISC-V and WPPSI-IV were used. As some aspects of the verbal subtests in the WISC-V and WPPSI-IV Swedish versions are country-specific, minor changes in the WISC-V and WPPSI-IV were undertaken to suit the sample better. The two country-specific questions about Sweden in the Information subtest were changed to questions about Finland. Furthermore, some adaptations of phrasings in a few questions were made [1].

NEPSY-II

NEPSY-II (Korkman et al., 2011) is a neuropsychological test evaluating the neuropsychological functioning of children aged 3 to 16 on six different developmental domains. The developmental domains are Attention/Executive Functioning, Language, Memory/Learning, Sensorimotor, Social Perception, and Visuospatial Processing. However, only seven subtests specifically assessing language and auditory memory functions were used in The FinSwed Study (see Table 3) In order to reduce the number of NEPSY-II variables, two domain variables (the Language domain and the Memory/Learning domain) were constructed. The subtests were divided into the domains according to the manual (Korkman et al., 2011). The domains were constructed by calculating the mean score for all participants on all subtests. The Language domain mean score for the whole group was $M = 10.81$ ($SD = 2.21$, range = 4.5–16.5) and the mean score for the Memory/Learning domain was $M = 11.92$ ($SD = 2.08$, range = 6.57–16.67). The Memory/Learning domain included different tasks for different age groups (see Table 3), as the children completed different NEPSY-II tasks depending on their age. However, as all subtests were converted to scaled scores, it was possible to calculate a mean score of the included subtests.

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[1] All changes were made according to the Statement of Work No. 296412 to Master License Agreement No. LSR–111089 with NCS Pearson

Table 3
NEPSY-II Subtests Used in the Study, Age Group Participating in Each Subtest, and the Constructed Domain Each Subtest was Integrated Into

	Subtest NEPSY-II	**Age group**
Language domain		
	Comprehension of Instructions	5–16
	Phonological Processing	5–16
	Word Generation	5–16 (Part A)/ 7–16 (Part B)
Memory/Learning domain		
	Sentence Repetition	5–6
	Word List Interference	7–16
	Narrative Memory	5–16
	List Memory	7–12

The Five to Fifteen Questionnaire (Five to Fifteen Revised, FTF-R)

The FTF-R (Kadesjö et al., 2017) is a validated, standardized questionnaire (Lambek & Trillingsgaard, 2015) to help identify developmental and behavioral problems in children and adolescents aged 5 to 17 years. The questionnaire was published in 2004 (Kadesjö et al., 2004) and revised with new norms (FTF-R) in 2015 (Lambek & Trilingsgaard, 2015). There are separate parental and teacher questionnaires, and the questionnaire has been translated into several languages. The Swedish translation of the FTF-R was employed in the current study. The FTF-R can be freely downloaded from the website 5-15.org. However, only professionals with competencies related to psychology, medicine, and healthcare should interpret questionnaire results. The FTF-R consists of 181 items related to everyday behavior and functioning across eight developmental areas. The items are phrased as statements relating to problems in everyday behavior and can be answered on a scale from 0–2 (0= does not apply, 1= applies sometimes/to some extent, 2= applies). Higher scores on the FTF-R indicates more problems. The FTF-R statements refer to the child's status during the past 6 months. The FTF-R covers a broad range of developmental functioning in daily life at home or at school. The specific domains and subdomains of the FTF- R are presented in Table 4. Only the parental version of the FTF-R was used in the current study. The 181 questions of the FTF questionnaire are divided into eight general domains: Motor skills, Executive functions, Perception, Language, Memory, Learning, Social skills, and Emotional and behavioral

problems. Parents of children below eight years of age do not fill out the Learning domain. Several of the domains are divided into subdomains. View Appendix B for a full list of items, general domains, and subdomains of the FTF-R.

The scores provided by the parents were compared to the norm sample of 4258 Danish parental questionnaires (Lambek & Trillingsgaard, 2015). The norms of the FTF-R questionnaire are grouped according to sex and age. The intervals of the age groups that the norms are based on are 5–7, 8–11, 12–15, and 16–17 years. Since every age group is further divided by sex, there are eight norm groups in total. The scores are transformed into percentiles, with the 90th percentile being a cut-off limit that indicates a clinically significant problem in a specific domain. For instance, in a sample of 100 children, ten are expected to score above the 90th percentile on a specific domain, indicating difficulties above the clinical cut-off related to everyday behavior.

Sociodemographic Information

Prior to the cognitive assessments of the FinSwed study, parents or guardians of each participating child filled out a background questionnaire covering sociodemographic information of the family including language background and parental education level. Parents also provided information on possible medications or disorders of the participating child, as well as their language background.

Statistical Analyses

Due to administration errors during assessments for the cognitive tests, some subtest items or whole subtest scores were missing and later imputed into the data. Missing scores on item or subtest levels were imputed through Expectation Maximation Imputation. For the WISC-V, item data was imputed for 3 participants (1.8%) on Similarities subtest, for one participant (0.6%) onVisual Puzzles subtest, and for two participants (1.2%) on Block Design and Comprehension subtests. For WPPSI-IV, item data was imputed for one participant each on Cancellation and Vocabulary subtests (0.6%) and for two participants (1.2%) on Block Design. As for NEPSY-II, data for 5 (3.0%) participants was imputed on the Word List Interference and Comprehension of Instructions subtests and for one participant (0.6%) on Phonological Processing. At the subtest level, a subtest score for one child (0.6%) was imputed for Phonological Processing and Word Generation subtests. As for missing data in the FTF-R, no imputation was undertaken.

To examine the relationships between combined WISC-V and WPPSI-IV index scores and scores on the FTF-R, six separate multiple logistic regression analyses were undertaken,

with the following FTF-R general domains chosen as dependent variables: Motor skills, Executive functions, Perception, Memory, Language, and Learning. The Wechsler indexes Verbal Comprehension Index, Visuospatial Index, Fluid Reasoning Index, Working Memory Index, and Processing Speed Index were chosen as predictors on the FTF-R general domains. Since WISC-V and WPPSI-IV follow the same structure in terms of indexes, the index scores for all participants in the study were merged into one single variable. Logistic regression with multiple predictors was chosen as method of analysis due to the assumptions of normality for the FTF-R data being violated. The FTF-R data was skewed and showed a floor effect with small variability within the data. Therefore, the initially continuous data were organized into dichotomous variables through a median split. Potential age and sex confounds were controlled for by splitting the data for each FTF-R domain separately for each age and sex norm group (see Table 4 for information on sample distribution across the norm groups). Splitting by the median was chosen instead of splitting by the 90th percentile, due to few observations (ranging from 5–24) above the 90th percentile. The distributions of the WISC-V and WPPSI-IV scores were considered normal by visual inspection in QQ- plots.

In order to investigate the relationships between NEPSY-II domains (see Table 3) and scores from the FTF-R, multiple regression analyses were undertaken, with the NEPSY-II constructed domains Language and Memory/Learning as predictors on the FTF-R domains. Six separate regression analyses were carried out with the following FTF-R domains as dependent variables: Motor skills, Executive functions, Perception, Memory, Language and Learning.

In order to assess the performance of the sample on the FTF-R in relation to the current FTF-R norms, an exact chi-square test was undertaken. The FTF-R questionnaire data were compared to the cut-off point for clinical problems. In accordance with the manual, the cut-off point for clinical problems was set at ≥ the 90th percentile (Manual 5-15., 2018). Mann-Whitney U test was used to compare differences in parental ratings between Finland-Swedish boys and girls and between monolingual and bilingual participants. All statistical analyses in the current study were undertaken using the IBM SPSS software (version 28.0, IBM Corp., Armonk, NY).

Table 4

Age Distribution of the Sample Categorized According to the FTF-R Norm Groups, and Medians of FTF-R Scores for Each Group

	Girls, 5–7	Boys, 5–7	Girls, 8–11	Boys, 8–11	Girls, 12–15	Boys, 12–15	Girls, 16–17	Boys, 16–17	Total sample
n	24	31	32	26	19	15	10	11	168
%	14.3	18.5	19.0	15.5	11.3	8.92	5.95	6.55	100
Mean age	6.63	6.74	9.44	9.62	12.98	13.07	16.10	16.45	10.12
SD of age	0.49	0.46	1.19	1.09	0.94	1.16	0.32	0.52	3.36
Age range	6–7	6–7	8–11	8–11	12–15	12–15	16–17	16–17	6–17
Median score of FTF-R domains									Mean
Motor skills	0.120	0.180	0.120	0.120	0.060	0.060	0.000	0.060	0.090
Executive functions	0.240	0.440	0.160	0.200	0.080	0.160	0.100	0.220	0.200
Perception	0.110	0.110	0.060	0.060	0.030	0.055	0.030	0.060	0.064
Memory	0.090	0.180	0.090	0.090	0.000	0.090	0.090	0.090	0.090
Language	0.025	0.070	0.000	0.0500	0.0500	0.000	0.000	0.000	0.024
Learning	N/A	N/A	0.070	0.190	0.070	0.110	0.040	0.070	0.092

Note. N/A = not applicable.

Results

Associations Between Cognitive Test Performance and Parental Ratings

Six separate logistic regression analyses with Wechsler indexes Verbal Comprehension Index, Visuospatial Index, Fluid Reasoning Index, Working Memory Index, and Processing Speed Index as independent variables were performed. The regression models proved non-significant ($p \geq .05$) for separate analyses using the following FTF domains as dependent variables: Motor skills (-2 log likelihood= 215.17), Executive functions (-2 log likelihood= 224.69), Memory (-2 log likelihood= 204.33), Language (-2 log likelihood= 213.13), and Learning (-2 log likelihood= 138.11). The model was significant for the FTF Perception domain (-2 log-likelihood = 211.82, p= .014). By further inspection of the predictors, higher scores on the Processing Speed Index significantly predicted more difficulties in the FTF Perception domain. Furthermore, a higher score on the Visuospatial Index significantly predicted less difficulties in the FTF Perception domain. Further information regarding the strength and direction of the predictors is found in Table 5.

Table 5

Results from Logistic Regression Analyses with Wechsler Indexes as Predictors on FTF-R Domains

Variable							
Dependent: FTF-R domain	**Independent: Wechsler index**	**(B)**	**SE**	***p***	**Exp (β)**	**95% CI lower**	**95% CI upper**
Motor skills	VCI	-0.001	.013	.953	0.999	0.974	1.025
	VSI	-0.025	.014	.080	0.975	0.948	1.003
	FRI	0.011	.015	.440	1.012	0.983	1.041
	WMI	-0.018	.015	.228	0.982	0.954	1.011
	PSI	-0.005	.014	.720	0.995	0.969	1.022
Executive functions	VCI	-.009	.013	.490	0.991	0.967	1.016
	VSI	-.024	.014	.085	0.977	0.951	1.003
	FRI	.011	.015	.455	1.011	0.982	1.040
	WMI	.006	.014	.652	1.007	0.979	1.035
	PSI	.010	.013	.430	1.010	0.985	1.036
Perception	VCI	-.024	.014	.079	0.976	0.951	1.003
	VSI	-.036	.015	**.015**	0.965	0.938	.993
	FRI	.008	.015	.573	1.009	0.979	1.039
	WMI	-.009	.015	.560	0.991	0.963	1.021
	PSI	.032	.014	**.023**	1.033	1.005	1.062
Memory	VCI	-.023	.014	.090	0.977	0.951	1.004
	VSI	-.005	.014	.742	0.995	0.968	1.024
	FRI	-.001	.015	.928	0.999	.969	1.029
	WMI	.000	.015	.979	1.000	0.971	1.031
	PSI	.000	.014	.995	1.000	0.973	1.028
Language	VCI	-.026	.013	**.049**	0.974	0.949	1.000
	VSI	-.012	.014	.388	0.988	0.961	1.015
	FRI	.024	.015	.117	1.024	0.994	1.055
	WMI	-.022	.015	.153	0.979	0.950	1.008
	PSI	.009	.013	.483	1.009	0.983	1.036
Learning	VCI	-.023	.018	.200	0.977	0.943	1.012
	VSI	-.016	.018	.373	0.984	0.949	1.020
	FRI	-.003	.019	.865	0.997	0.961	1.034
	WMI	.015	.019	.427	1.015	0.978	1.053
	PSI	-.007	.018	.711	0.993	0.959	1.029

Note. VCI = Verbal Comprehension Index, VSI = Visuospatial Index, FRI = Fluid Reasoning Index, WMI = Working Memory Index, PSI = Processing Speed Index. Bolded numbers indicate a significant value.

Associations Between NEPSY-II Domain Scores and the FTF-R

The regression models were non-significant for analyses using FTF-R domains Executive functions (-2log likelihood= 226.664) and Language (-2log likelihood= 217.797) as dependent variables. However, the models were significant for analyses with the FTF-R domains Motor skills (-2log likelihood=215.205, p = .029), Perception (-2log likelihood= 218.433, p = .022), Memory (-2log likelihood= 197.676, p =.003.), and Learning (-2log likelihood=133.661, p = .009) as dependent variables. When further inspecting the predictors, the results displayed that higher NEPSY-II Language scores predicted less difficulties in the FTF-R Motor, Memory, and Learning domains. Higher scores in the NEPSY-II Memory/Learning domain, on the other hand, significantly predicted less difficulties in the FTF-R Perception domain. Further information regarding the strength and direction of the predictors is found in Table 6.

Table 6

Results from Logistic Regressions with NEPSY-II Domains as Predictors on FTF-R Domains

Variable dependent: FTF-R domain	**Independent: Nepsy-II constructed domain**	**(B)**	***SE***	***p***	**Exp (β)**	**95% CI lower**	**95% CI upper**
Motor skills	Memory/Learning	.089	.098	.364	1.093	.902	1.325
	Language	-.257	.106	**.015**	.773	.629	.951
Executive functions	Memory/Learning	-.044	.092	.632	.957	.99	1.146
	Language	-.079	.098	.423	.924	.762	1.121
Perception	Memory/Learning	-.213	.99	**.032**	.808	.666	,981
	Language	.014	.102	.890	1.014	.831	1,237
Memory	Memory/Learning	-.038	.102	.710	.963	.788	1.176
	Language	-.254	.109	**.020**	.776	.627	.960
Language	Memory/Learning	-.131	.096	.173	.877	.726	1.059
	Language	-.043	.101	.672	.958	.787	1.167
Learning	Memory/Learning	.031	.135	.815	1.032	.793	1.344
	Language	-.352	.144	**.015**	.704	.530	.933

Note. Bolded numbers indicate a significant value

Performance of a Typically Developing Finland-Swedish Sample on the FTF-R

The distribution of Finland-Swedish children that obtained parental rating scores above the clinical cut-off point of the 90th percentile ranged from 2.8% to 14.2% (Table 7), with scores on most domains and subdomains distributed around the expected distribution of 10%. However, significantly fewer children scored above the clinical cut-off point on the FTF subdomains *concept of time*, *perception of shape*, *arithmetic*, and *learning new things and applying knowledge in school* than expected based on the questionnaire norms.

Finland-Swedish boys were rated as having more difficulties compared to Finland-Swedish girls in the FTF-R general domains Motor skills (Mdn_{boys}=0.12000, Mdn_{Girls}=0.06000, U = 2707.500, z= -2.656, p= 0.008), Executive functions (Mdn_{boys} =0.28000 =, Mdn_{Girls} = 0.16000, U =2799.000, z= -2.091, p= 0.037), Language (Mdn_{boys} =0.05000 =, Mdn_{Girls} = 0.000, U 2760.000, z= -2.121, p= 0.034), Learning (Mdn_{boys} =0.11000=, Mdn_{Girls} 0.07000, U=1013.500, z= -2.425, p= 0.015) and Social skills (Mdn_{boys} = 0.07000 =, Mdn_{Girls} = 0.04000, U=2406.500, z=-2.768 , p= 0.006). Moreover, bilingual children obtained higher scores on the FTF-R Language domain than monolingual children ($Mdn_{bilingual}$= 0.0500, $Mdn_{monolingual}$= 0.000 U= 2660,500 z= -2.244, p= 0.025), meaning that they were rated by their parents as having more language-related difficulties than their monolingual peers.

Table 7

Frequencies (and Percentages) of Participants Scoring Above the 90th Percentile in FTF-R Domains and Subdomains

Domain	***N***	***N* scoring above the 90th percentile**	**χ2**	***p***
Motor functions	168	24 (14.2%)	3.43	.071
Gross motor skills	168	21 (12.5%)	1.17	.302
Fine motor skills	168	18 (10.7%)	0.10	.796
Executive functions and attention	168	22 (13.1 %)	1.80	.197
Attention and concentration	166	23 (13.9%)	2.74	.118
Overactivity and impulsivity	165	22 (13.3%)	2.04	.193
Passivity/ inactivity	163	20 (12.3%)	0.93	.359
Planning/ organizing	163	20 (12.3%)	0.86	.436
Perception	165	17 (10.3%)	0.08	1.00
Concept of space	165	10 (6.1%)	2.85	.117
Concept of time	165	7 (4.2%)	6.08	**.019**
Concept of body	165	21 (12.7%)	1.36	.298
Perception of shape	164	8 (4.9%)	4.78	**.036**
Memory	164	13 (7.9%)	0.78	.436
Language	164	13(7.9%)	0.78	.436
Comprehension of language	164	13 (7.9%)	0.78	.436
Expressive language	162	13 (8.0%)	0.70	.436
Verbal communication	162	13 (8.0%)	0.70	.436
Learning [a]	106	5 (4.7%)	3.29	.074
Reading and writing [a]	106	6 (5.7%)	2.29	.147
Arithmetic [a]	106	3 (2.8%)	6.06	**.014**
Learning new things and applying knowledge in school [a]	106	3 (2.8%)	6.06	**.014**
Problem solving in school [a]	106	9 (8.5%)	0.27	.636
Social skills	160	15 (9.4%)	0.07	.895
Psychological problems	160	22 (13.8%)	2.50	.145
Internalizing behavior	160	18 (11.3%)	0.29	.693
Externalizing behavior	160	19 (11.9%)	0.66	.510
Obsessive actions or thoughts	160	17 (10.6%)	0.07	.895

Note. Results from exact chi-square tests were undertaken to compare sample performance of the current study to the official norms. The expected frequency of clinical problems was 10%

of total observed *N*. Significant values here denote that significantly less children than expected obtained scores with clinical impact.

[a] The FTF does not offer norms for children below eight years of age on the Learning domain, and therefore younger children were not included in the analysis.

Discussion

The main aim of the current study was to explore the associations between cognitive test performance on the WISC-V, WPPSI-IV, and NEPSY-II and parental ratings from the FTF-R in a typically developing population. Few significant associations were found. Wechsler Visuospatial Index was a significant predictor on the FTF-R Perception domain. Apart from this, no other association were found to support the hypothesis that corresponding domains would be associated. The current study offers no strong support for clear associations between performance on commonly used cognitive tests and the FTF-R in a typically developing sample. The results of the current study indicates that FTF-R as a test instrument is not sensitive enough to display similar associations towards cognitive tests in a more homogeneous non-clinical sample as it is in more heterogeneous clinical groups. The secondary aim of the current study was to examine the performance of Finland-Swedish children on the FTF-R in comparison with the official norms. The current study highlights that the FTF-R norms seem suitable for Finland-Swedes, although the current study sample of typically developing Finland-Swedes seemed to have fewer difficulties in perception and learning domains compared to the Danish norm group.

Relationships Between Cognitive Test Performance and Parental Ratings on the FTF-R

It was hypothesized that significant associations between theoretically corresponding domains from the cognitive tests the WISC-V, WPPSI-IV and NEPSY-II and FTF-R parental ratings would emerge. However, only the association between WISC-V Visuospatial Index and FTF-R Perception domain supported this hypothesis. In contrast to the generally expected direction of association, a higher Processing Speed Index predicted more difficulties in the FTF-R Perception domain. Regarding cross-domain associations, higher NEPSY-II Language scores predicted fewer difficulties in the FTF-R Memory, Learning, and Motor skills domains, and higher NEPSY-II Memory/Learning scores predicted fewer difficulties in the FTF-R Perception domain. These findings are discussed in more detail below.

Relationships Between Wechsler Indexes and FTF-R Scores

Significant associations obtained from regression analyses using Wechsler indexes as predictors on FTF were few and weak. Higher Visuospatial Index scores from the Wechsler

tests significantly predicted lower scores on the FTF-R Perception domain. This is an intuitive and expected result in line with results from Koivisto et al. (2012) and Korkman et al. (2004), in which the NEPSY-II Visuospatial Processing domain was significantly negatively correlated with the FTF Perception domain. Furthermore, Trillingsgaard et al. (2004) presented a similar association between the WISC-III Perceptual Organization Index and the FTF Perception domain. Hence, it seems that an association between visuospatial skills measured through earlier and recent Wechsler tests and NEPSY-II (Korkman et al., 2004, Koivisto et al., 2012) and parental rated everyday perception can be seen both in clinical and typically developing samples.

Higher Processing Speed index scores significantly predicted higher scores on the FTF Perception domain, which indicates that higher processing speed would be associated with difficulties with perceptual skills in everyday life. This result was surprising and not in line with any previous findings. Perhaps some children who display a speed/ accuracy trade-off, meaning that they complete tasks fast but with many errors, may also miss perceptual cues in everyday life. Fifty-two children made at least one error in the Symbol Search subtest, and 14 made more than one error, despite the sample's overall Processing Speed Index being normative. However, this may not serve as a sole explanation, and no previous studies have obtained similar findings when comparing Wechsler index scores and FTF performance. Thus, the result may also be a chance finding.

Despite the statistical model being non-significant for the regression analysis employing FTF-R Language as the dependent variable, a higher Wechsler Verbal Comprehension Index significantly predicted lower FTF-R Language scores. Although the result is intuitive and similar associations have been demonstrated in previous studies (Trillingsgaard et al., 2004; Lind et al., 2009), the result should be interpreted with caution since the model did not reach statistical significance.

Relationships Between the NEPSY-II Language and Memory/Learning Domains and FTF-R Scores

Higher scores on the NEPSY-II Language domain were significantly associated with less difficulties on the FTF-R domains Memory, Learning, and Motor skills. Items from the FTF-R Memory domain contain e.g. items about how well a child can remember instructions and whether a child can remember songs and rhymes by heart. Arguably, these items can, to a certain degree, reflect language skills as well as memory functions and can thus serve as a possible explanation for the significant association between NEPSY-II Language domain and FTF-R Memory domain. As for the predictive effect of NEPSY-II Language on the FTF-R

Learning domain, it may possibly be explained by the fact that a substantial part of the questions related to FTF Learning taps reading capacity and the ability to understand and apply given instructions, which arguably are related to an individual's language functions.

The results also suggested that higher NEPSY-II Language domain scores predicted higher FTF-R Motor skills scores and thus more reported difficulties within the Motor skills domain. This result was non-intuitive and surprising. Earlier research has presented an association between gross and fine motor skills and language development in infancy and early childhood (Gonzalez et al., 2019). Moreover, it was suggested in a review by Leonard & Hill (2014) that motor skills may play a role in social communication and language skills even in older children. The role of motor skills in relation to cognition have mostly been suggested to have associations with processing speed, working memory, and perception (Klupp et al., 2021). However, early motor skills have been suggested to be associated with later verbal abilities in children with Autism Spectrum Disorder (Bedford et al, 2016; LeBarton & Landa, 2019). It could be useful for future research to further explore the role of language in relationship to motor skills in school aged children. Earlier literature is lacking in regards to how motor and language skills relate to each other in non-clinical samples, and hence, the possibility of the present study's result being a chance finding cannot be ruled out.

Higher NEPSY-II Memory/Learning domain scores significantly predicted lower scores on the FTF-R Perception domain. However, memory and perception are not theoretically corresponding cognitive domains. When inspecting FTF-R scores on subdomain and item level, the subdomain *concept of time* generated the highest FTF-R scores compared to other subdomains (see appendix B for mean scores of domains, subdomains, and items). The FTF-R domain concept of time contains statement such as "Poor concepts of time. e.g. does not have an intuitive feeling for how long "five minutes" or "one hour" take or is uncertain about how long ago something happened" and "Repeatedly asks about when something is going to happen. e.g., how much time is left before an outing or before it is time to go to school". Although these items belong to the FTF-R Perception domain, it is possible that informants link said behaviors to memory functions, which could explain the association. Moreover, earlier research do suggest that perception of time is linked to memory functions (Roy et al, 2005), further supporting this hypothesis.

Previous studies have reported intercorrelations between both corresponding and non-corresponding FTF and NEPSY-II domains (Koivisto et al., 2012; Korkman et al., 2004; Lind et al., 2009). Thus, it was surprising that only the NEPSY-II Language domain, not the NEPSY-II Memory/Learning domain, was a significant predictor for FTF-R memory scores.

The FTF-R Memory domain does contain items related to remembering names and facts, which arguably tap into language functions as well as memory functions. However, the NEPSY-II memory subtests used in the current study are all measurements of auditory memory. Therefore, it was surprising that it showed no significant associations to either FTF-R Memory or Language. However, the intercorrelation between the constructed NEPSY-II Language and Memory/Learning domains was at r=0.64, which might elicit some suppressor effect for the NEPSY-II Memory/Learning – FTF-R memory association.

Cognitive Test Performance and the FTF-R: A Summary

The logistic regression analyses undertaken with Wechsler predictors demonstrated few and weak associations, suggesting no clear relationship between cognitive test performance measured through the WISC-V or the WPPSI-IV and FTF-R parental reports in typically developing children. Most predictors were non-significant, with beta-values close to zero. Previous literature has mainly focused on the relationship between NEPSY-II and FTF, with only one previous study investigating the relationship between WISC-III and the FTF (Trillingsgaard et al., 2004). In the study by Trillingsgaard et al. (2004) significant associations between WISC-III indexes and corresponding FTF-domains were presented in a clinical sample. The current study did not obtain similar results, which may be attributed to sample differences and difference in factor structures between the WISC-III and the WISC-V. Moreover, earlier studies that have found significant associations between cognitive tests and FTF have utilized the first version of the questionnaire, the FTF. It might be that the differences in results from previous studies can be attributed not only to sample characteristics, with previous studies focusing on clinical groups, but also on differences in psychometric properties between FTF and FTF-R.

In the current study, the choice of median splitting the FTF-R data into two categories may have influenced the results. The categorized data generated one group with higher scores, indicating more reported difficulties, and another group with lower scores, indicating fewer difficulties. In general, the sample did not achieve high ratings on the FTF-R, resulting in a relatively low median value (see Table 4), meaning neither one of the two categorical groups (low scorers and higher scorers) received particularly high ratings. This likely contributed to a floor effect regarding the FTF-R scores, with small variation in the data. The FTF-R is originally designed to help in assessment of children with ADHD and its comorbidities (Kadesjö et al., 2004) and may, as such, not be a sensitive instrument for detecting subtler problems in a typically developing population. Future research should consider this implication when studying typically developing samples using the FTF-R.

The NEPSY-II Language domain predicted various aspects of everyday functions, more so than NEPSY-II Memory/Learning domain or any Wechsler domain. However, these results could be due to a constructional overlap in FTF-R Memory and Learning domains. The FTF-R learning and memory domains contains statements that arguably taps into language functions as well as memory and learning.

Challenges of Comparing Parental Ratings with Cognitive Test Performance

Although the cognitive domains of WISC-V, WPPSI-IV, and FTF-R correspond theoretically to each other, they may not be comparable due to differences in their psychometrical foundation. The Wechsler scales are statistically driven, with an underlying factor structure for the indexes, while the domains of FTF-R are not statistically based. In fact, previous factor-analytical studies have suggested fewer FTF-R domains organized into different constructional categories than the domains currently in use (Bohlin & Janols., 2004; Bruce et al., 2006; Lambek & Trillingsgaard., 2015). For instance, Bruce et al. (2006) proposed a six-factor structure based on a sample of 76 children with diagnosed ADHD, where subscales from the FTF-R perception domain were integrated into the Motor skills domain. Bruce et al. (2006) suggest that the structure of the current FTF-R consists of constructed domains that might not purely target only the designated cognitive construct. Thus, this could weaken the associations to more isolated cognitive measurements such as the WISC-V and WPPSI-IV indexes.

Furthermore, a possible reason for the lack of clear relationships between the measurements can be attributed to the nature of the measured performance. Toplak et al. (2013) discussed the difference between typical and maximal performance in their review. Maximal performance comes into play in cognitive testing situations that require an individual to perform on a task that is highly specific and highly demanding. On the other hand, typical performance reflects how an individual would behave in an everyday setting. Thus, one can argue that rating scales, and further tests that tap into the everyday function of individuals, measure a different aspect of the targeted cognitive function than cognitive tests do.

The lack of a connection between Wechsler indexes and NEPSY-II domains to FTF-R scores could also be attributed to characteristics of the sample. The present sampe represented a highly functioning one, with an average to slightly above average cognitive performance as measured through the WISC-V and WPPSI-IV. The normative cognitive test performance could be likely to have generated little variation on the FTF-R.

Moreover, the cognitive assessments were undertaken between October 2019 and February 2021, whereas the FTF-R data collection took place between April 2021 to July 2021. It is thus possible that the time interval between assessments and FTF-R data obtainment was for some cases longer than two years. At least for the younger end of the sample, it is plausible that problems related to everyday life that theoretically could have been evident by the time of the cognitive assessments had diminished prior to the FTF-R data being collected, which also could explain the lack of associations.

Performance of Typically Developing Finland-Swedish Children and Adolescents on FTF-R

The sample of 168 typically developing Finland-Swedish children aged 6–17 performed within expected limits as suggested by the FTF-R-questionnaire norms, with roughly 10 % of the sample performing above the clinical cut-off limit on most domains. However, the sample presented significantly fewer cases than expected with clinically indicated difficulties on the FTF-R subdomains *concept of time*, *perception of shape* (belonging to Perception domain), *arithmetic* and *learning new things and applying knowledge in school* (belonging to Learning domain). The current FTF-R norms derive from a sample of approximately 4000 Danish children gathered through an age and sex stratified sampling procedure carried out by Statistics Denmark in which no specific exclusion criteria concerning physical and psychological disorders were employed (Lambek &Trillingsgaard, 2015). In turn, The FinSwed Study excluded children with learning disabilities and neurological, developmental, neuropsychiatric, or psychiatric disorders (see Appendix A for more details of the exclusion process of the study as a whole). A possible explanation for the low frequency of scores above the clinical cut-off limit on FTF-R domains *arithmetic*s *and learning new things and applying knowledge in school* could thus be attributed to the fact that the sampling procedure excluded children with diagnosed learning disorders. The Danish normative sample (Lambek & Trillingagaard, 2015) can be expected to display more variability regarding such difficulties due to less strict exclusion criteria. Another explanation for why parents reported less learning-related difficulties could be the Finnish educational system, which has proved effective in generating high literacy scores in Finnish school children (Reinikainen, 2012). When comparing results from the 2018 Programme for International Student Assessment (PISA; OECD, 2010), Finland-Swedish children outperformed Danish children in reading, maths, and science (Ministry of Education and culture, 2019), although the Danish children did still perform at a globally high level (OECD, 2019a; OECD, 2019b, OECD, 2019c). Moreover, there seems to exist a clear association

between general cognitive ability and mathematical achievement in school (Roth et al., 2015). The current study sample displayed an overall slightly higher than average FSIQ, which might relate to mathematic ability in daily life and at school.

A possible explanation for the low number of clinically rated difficulties in the FTF-R subdomains *concept of time* and *perception of shape* could be attributed to the items included in these domains. For example, the *perception of shape domain* contain items such as: “tends to misinterpret pictures; e.g., may perceive a picture of a fried egg as that of a flower" and "difficulty with jigsaw puzzles". Furthermore, concept of time subdomain contains items such as “Has only a vague idea about what time it is, whether it is morning or afternoon, whether it is time or not to go to school” (see Appendix B to view all FTF-R items). It may be plausible that a child must display noticeable difficulties with perception and concept of time to obtain high ratings on the *perception of shape* and *concept of time* domains. It could thus be possible that subtle difficulties related to *concept of time* and *perception of shape* may be difficult to detect with the items presented. Moreover, each subdomains contains relatively few items (four each for *concept of time* and *perception of shape* subdomains). It could thus be possible that the nature and limited number of the items may have contributed to low variation, particularly in this high-functioning sample. The age range of the FTF-R should also be considered, where the same questions are presented to five as well as fifteen year-olds. Some questions may possibly not be suitable for neurotypical fifteen year-olds.

Sex and Language Background

Finland-Swedish boys were rated as having significantly more difficulties in the FTF-R domains Motor skills, Executive functions, Language, Learning, and Social skills than Finland-Swedish girls. No differences were seen in Perception, Psychological problems, and Memory. Finland-Swedish boys performed lower scores than Finland-Swedish girls in the latest PISA test (Ministry of Education and Culture, 2019). Therefore, it is possible that this difference may be seen also at home concerning everyday activities. Previous studies have also observed less reported difficulties on the FTF for girls than for boys (Bohlin & Janols, 2004). However,results from Lambek et al (2010) showed that clinically referred boys and girls obtained more similar FTF-R profiles than a group of non-referred boys and girls, in which boys were rated as being more impulsive and hyperactive than girls. The findings from Lambek et al (2010), Bohlin and Janols (2004) and the current study may indicate that gender differences on the FTF-R is larger in a typically developing samples than in clinically referred samples. It is possible that clinically referred groups overall display larger variations on FTF-R scores, which may suppress the between-group gender differences.

Bilingual Finland-Swedish children were rated as having more difficulties in the FTF-R Language domain than monolingual children. Previous research does not offer much support for differences in cognitive abilities between monolingual and bilingual Finland-Swedish children at school age (Karlsson et al., 2015, Gädda et al., 2019). However, some differences have been found in expressive vocabulary measured with the WPPSI-IV in 5–6-year-old Finland-Swedish children, suggesting a monolingual advantage (Korpinen, 2021). It could thus be plausible that a language-related difference between monolinguals and bilinguals may occur in the younger end of the current study sample, contributing to the significant difference. However, it was not within the scope of the current study to undertake analyses for separate age groups. Furthermore, earlier research do suggest that bilingual children display weaker expressive language skills than monolinguals when assessing their language abilities on only one of their spoken languages (Thordadottir et al., 2006; Thordadottir, 2011). Only the Swedish version of the FTF-R was handed out to participating families, and it is thus possible that the parents only had their children's Swedish language skills in mind while filling out the questionnaire.

Limitations

Parental ratings as a measurement for everyday behavior come with their limitations. Parents have been shown to both underestimate and overestimate their children's cognitive abilities in everyday life compared to their children's performance on neuropsychological tests (Koivisto et al., 2012; Lind et al., 2009), and may, as such, not always be reliable informants. The specific skills that are measured in cognitive and in neuropsychological tests may not always be required in everyday activities, and these skills may as such not be evident to parents that observe their children in an everyday context. It is furthermore possible that teachers would provide additional information on everyday cognitive functions since teachers have a broad experience with children and observe children in an environment where cognitive abilities are needed and tested. In fact, in the validation study of the teacher norms for the FTF-R (Lambek & Trillingsgaard., 2015), teachers were prone to report more difficulties in FTF-R Learning and Language domains than parents did. In contrast, parents reported more psychological problems and perceptual difficulties than teachers. The differences were nevertheless considered small enough not to affect the reliability of the measurements.

In the current study, the parental questionnaire FTF-R was used as an ecological measurement of cognitive functions, i.e., a tool measuring how cognitive abilities operate and express themselves in everyday life. Self-reports and informant surveys can be and are

utilized as ecological tools in psychological assessments (Benson et al., 2019, Burgess et al., 1998; Egeland et al., 2017; Ready et al., 2001, Rosenqvist et al., 2022). However, question items are usually framed as queries regarding how things usually are, and they do not take into account momentary and rapid shifts of everyday behavior. Also, ratings depend on the informant‘s retrospective memory not being biased, which poses the question of how ecologically valid questionnaires regarding daily life actually are (Shiffman et al., 2008).

The current study was conducted on a cognitively high-functioning sample. Despite the samples' FTF-R rating scores reaching above the expected 10 % cutoff limit on most FTF-R domains, the FTF-R data nonetheless displayed little variation, prompting statistical analyses with dichotomous variables that limit variation. This should be considered when interpreting the results.

Lastly, it is possible that the study would have obtained more specific information about the relationship between cognitive and neuropsychological measurements and parental ratings had a smaller age range been chosen for the study. The information provided by the current study sheds light on how the FTF-R generally works in a broad age group, but cannot provide information about specific patterns in different developmental stages of children, if there are any.

Conclusions and Further Recommendations

The current study is the first to assess the relationship between Wechsler indexes measured through the newest versions of the WISC-V, WPPSI-IV, and FTF-R parental ratings. Better Visuospatial Index scores significantly predicted fewer difficulties in parental rated everyday perceptual skills, which was in line with previous literature on clinical samples. Overall, significant associations between Wechsler indexes and FTF-R domains were few and weak. The lack of associations between theoretically corresponding domains between Wechsler indexes and FTF-R offers no strong support for the ecological validity between the instruments. This study suggests that while the FTF-R may not be functional in depicting how strengths and weaknesses noticeable in cognitive tests are shown in everyday life, as earlier research on clinical samples suggest, the questionnaire is nevertheless useful as a tool for providing information that cannot be obtained through cognitive tests. Moreover, the FTF-R consists of domains that are not statistically driven, and it may be beneficial as such not to draw conclusions solely based on domain scores. Rather, the FTF-R seems to yield beneficial information on item level rather than only looking at domains as a whole.

The present sample of Finland-Swedish children and adolescents exhibited a largely similar distribution of clinically indicated difficulties on the FTF-R as suggested by the official norms, but presented significantly less difficulties on subdomains related to learning and perception. Thus, the current version of the FTF, the FTF-R, with its official Danish norms, seems applicable to a Finland-Swedish setting. Bilingual children were rated as having more difficulties in their everyday language skills than their monolingual peers, a notion that should be considered when assessing Finland-Swedish children with the FTF-R.

Sambandet mellan kognitiva testresultat och föräldraskattad vardagsfunktion hos 6-17 åringar

Summary in Swedish – Svensk sammanfattning

Föräldraformulär med avseende att mäta barns vardagsfunktion är tillsammans med kogntiva test viktiga utredningsverktyg inom barnpsykologisk klinisk praxis. Frågeformulär för föräldraskattad vardagsfunktion har ofta syftet att mäta samma kognitiva konstrukt som kognitiva test. Tidigare forskning påvisar dock inget starkt stöd för ett samband mellan föräldraskattningar av kognitiva vardagsfunktioner och kognitiva testresultat (Toplak m.fl.,2012; McAukey m.fl.,2010; Chaytor & Schmitter-Edgecombe., 2003). Dock kan frågeformulär ändå ses som värdefulla instrument som kan förse kliniker med ytterligare information utöver vad de kognitiva testen ger (Isquith m.fl., 2013).

Denna studie fokuserar på föräldraformuläret Fem till femton (*Five to Fifteen – revised*; FTF-R; Lambek & Trillingsgaard, 2015). FTF-R undersöker flera utvecklingsområden, *domäner*, såsom språkfunktioner, exekutiva funktioner, minne och inlärning. I tidigare studier på kliniska sampel har signifikanta samband mellan föräldraskattning av vardagsfunktion via FTF-R och kognitiva testresultat påvisats (Koivisto m.fl, 2012; Lind m.fl., 2009; Trillingsgaard m.fl., 2004; Korkman m.fl., 2004). Dock har ingen tidigare studie undersökt dessa samband i ett icke-kliniskt sampel. Information om hur kognitiva testresultat relaterar till föräldraskattning av vardagsfunktioner mätt genom FTF-R kan generera kunskap om frågeforumulärets egenskaper i en population med typisk utveckling. I den här studien undersöktes sambandet mellan kognitiva testresultat från de kognitiva testen WISC-V, WPPSI-IV och NEPSY-II och föräldraskattad vardagsfunktion mätt via FTF-R. Denna studie fokuserade på ett sampel av finlandssvenska barn och unga. Dessutom undersöktes hur finlandssvenska barn och unga skattas av sina föräldrar i jämförelse med de officiella danska normerna (Lambek & Trillingsgaard, 2015).

Kognitiva testresultat kombineras ofta med information från närstående i kliniska psykologiska utredningar, i syfte att få en helhetsbild av en persons fungerande. Följaktligen

är det av stor vikt att veta sambandet mellan kognitiva tesresultat och vardagsfungerande. Ett kognitivt tests förmåga att förutspå vardagsfungerande kan ge värdefull information om vidare behandling och rehabilitering (Chaytor & Schmitter-Edgecombe, 2003).Vidare kan sambandet mellan kognitiva testresultat och vardagsfungerande belysa kognitiva tests ekologiska validitet (Rabin m.fl., 2007), som i tidigare psykologisk forskning om kognitiva funktioner i vardagagen operationaliserats genom frågeformulär (Burgess m.fl., 1998; Ready m.fl., 2003).

Användningen av frågeformulär riktade till närstående är omfattande i klinisk praxis inom Norden och Nordamerika (Benson m.fl., 2019; Egeland m.fl., 2017), och i Svenskfinland är FTF-R det mest använda föräldraformuläret i barnkliniska utredningar (ref). Jämfört med andra vanliga föräldraformulär, såsom Strenghts and Difficulties Questionnaire (SDQ) (Goodman, 1997) och Child Behavior Checklist (CBCL) (Achenbach, 1999), fokuserar FTF-R-formuläret på ett bredare spektrum av konstrukt, där både kognitiva funktioner och symptom relaterade till psykiska problem efterfrågas. I denna studie ligger de kognitiva domänerna i FTF-R, det vill säga motoriska färdigheter, exekutiva funktioner, perception, minne, språk och inlärning i fokus.

I den här studien jämfördes föräldraskattning via FTF-R med kognitiva testresultat från de mest använda kognitiva och neuropsykologiska testen inom klinisk barnpsykologisk praxis i Svenskfinland: (Rosenqvist m.fl., 2022) WISC-V (Wechsler, 2016), WPPSI-IV (Weschler, 2014) och NEPSY-II (Korkman, Kirk och Kemp, 2011).

Det finns endast ett fåtal studier som undersökt sambandet mellan kognitiva testresultat och föräldraskattning genom FTF-R. Tidigare studier har använt sig av den ursprungliga versionen av Fem till femton-formuläret, FTF (Kadesjö m.fl., 2004). Dessutom har tidigare studier undersökt sambandet i kliniska sampel. De tidigare studierna påvisar ett övergripande negativt samband mellan kognitiva testresultat och FTF-poäng. Höga poäng på kognitiva test tyder på en hög testprestation, medan låga poäng på FTF tyder på färre problem inom den efterfrågade domänen. Vidare verkar det som att teoretiskt motsvarande kognitiva domäner (exempelvis FTF-R-språkdomän och NEPSY-II-språkdomän) till en viss grad verkar korrelera (Lind m.fl., 2009; Koivisto m.fl., 2012), vilket skulle tyda på att de uppmätta konstrukten överlappar varandra. Dessutom påvisade Koivisto m.fl (2012) att sambandet mellan NEPSY-II och FTF blir mer domänspecifikt, dvs att endast de teoretiskt motsvarande domänerna korrelerar då en subgrupp av samplet med en intelligenskvot på över 85 poäng undersöktes. I hela gruppen, som inkluderade barn med större global kognitiv nedsättning, var sambanden yvigare och inte lika tydligt specifika för motsvarande domän. Resultaten från

Koivisto m.fl. (2012) tydde på att mer specifika samband uppkommer i en grupp med högre fungerande deltagare. Emellertid har sambanden både mellan teoretiskt motsvarande och icke motsvarande domäner inte varit konsekvent lika starka i alla tidigare studier, samtidigt som alla teoretiskt motsvarande domäner inte konsekvent korrelerar i alla tidigare studier.

Den enda studie som undersökt samband mellan FTF poäng och indexpoäng från Weschlertest (Trillingsgaard et al., 2004) påvisade signifikanta samband mellan Weschler-index och teoretiskt motsvarande FTF-domäner. Trilllingaard m.fl. (2004) använde sig av WISC-III, en äldre version av WISC, och sedan dess har ingen liknande studie med den nyaste versionen av WISC gjorts. Dessutom har några samband mellan FTF och de kognitiva testen WISC-V, WPPSI-IV och NEPSY-II inte heller undersökts i ett sampel på barn med typisk utveckling.

Studiens syfte

Studiens huvudsyfte var att undersöka sambandet mellan de mest använda kognitiva testinstrumenten inom klinisk barnpsykologi i Svenskfinland och FTF-R i 6-17-åringar. Utifrån tidigare studier på kliniska sampel ställdes hypotesen att högre poäng i kognitiva test skulle ha ett samband med mindre svårigheter i vardagslivet enligt föräldraskattning mätt genom FTF-R. Deltagarna i denna studie bestod av finlandssvenskar med typisk utveckling i åldern 6-17 år. I Finland är 5,2 % av befolkningen registrerade som svenskspråkiga, fastän det är vanligt att finlandssvenskar talar både finska och svenska. Ingen tidigare studie har undersökt hur denna grupp skattas av sina föräldrar på FTF-R i jämförelse med de officiella danska normerna, och ett andra syfte i denna studie var att undersöka detta. I enlighet med de föreslagna normerna i FTF:s manual som återfinns på 5-15.org ställdes hypotesen att 10% av studiens sampel skulle erhålla poäng som översteg en klinisk gräns i jämförelse med normgruppen.

Metod

Samplet i den här studien bestod av 168 finlandssvenskar med typisk utveckling i åldern 6-17 år (M = 10,12, SD = 3,36), som antingen var enspråkigt svensktalande eller tvåspråkigt svensk- och finsktalande. Samplet härleddes från en större studie, forskningsprojektet The FinSwed Study, där föräldrarna senare ombands fylla i FTF-R-formuläret som en uppföljningsstudie. Inom ramarna för The FinSwed Study-projektet undergick deltagarna en kognitiv utredning, där de testades med de svenska versionerna av WISC-V, WPPSI-V och deltest från NEPSY-II. Barn som erhöll någon form av psykiatrisk, foniatrisk eller neuologisk vård exkluderades från The FinSwed Study-projektet. Även barn med inlärningssvårigheter exkluderades. Dessutom exkluderades prematurt födda barn, barn med icke-korrigerad syn-

och hörselnedsättning, barn med pågående medicinering för psykiatrisk eller neurologisk sjukdom samt barn som av andra orsaker skulle komma att testas eller nyligen hade blivit testade med antingen WISC-V, WPPSI-V eller NEPSY-II.

De kognitiva utredningarna som hölls inom ramen för The FinSwed Study-projektet pågick mellan oktober 2019 och februari 2021. Mellan april och augusti 2021 ombads varje förälder till barnen som utretts inom The FinSwed Study att fylla i FTF-R formuläret. Formulären mejlades ut och totalt 168 svar returnerades, accepterades och inkluderades i studien.

Mätinstrumenten som användes i studien var WISC-V, som administrerades inom ramen för The FinSwed Study åt 118 stycken 6-16-åringar, och WPPSI-IV, som administrerades åt 52 stycken 5-7,7-åringar. Dessutom testades deltagarna med sju utvalda deltest från NEPSY-II-testet, vilka mätte antingen språkfunktioner eller minnes/inlärningsfunktioner. FTF-R-formuläret är ett validerat och standardiserat frågeformulär (Lambek & Trillingsgaard, 2015), som ursprungligen lanserades år 2004 (Kadesjö m.fl 2004), men som reviderades med nya normer år 2015. Formuläret består av 181 frågor relaterade till vardagsbeteende och fungerande som omfattar följande åtta utvecklingsdomäner: motoriska färdigheter, perception, exekutiva funktioner, minne, språk, inlärning. Sociala färdigheter och psykologiska problem. Varje domän har ytterligare egna subdomäner. Frågorna är formulerade enligt påståenden som är relaterade till problem i vardagsfungerande och besvaras på en skala från 0 till 2 (0= stämmer inte, 1= stämmer ibland/ i viss mån, 2= stämmer). FTF-R-formulärets validerade normer består av ett sampel på 4258 danska föräldraformulär. Normerna är indelade i åtta normgrupper utifrån kön och ålder. Åldersintervallet i normgrupperna är 6-7, 8-11, 12-15, och 16-17 år. Högre poäng på FTF-R indikerar mer problem. Poängen räknas in i percentiler, där den 90:e percentilen enligt manualen föreslås som ett gränsvärde för kliniskt signifikanta problem. I ett sampel på 100 barn förväntas följaktligen tio barn erhålla poäng som överstiger den 90:e percentilen, det vill säga 10 %.

För att undersöka sambandet mellan WISC-V- och WPPSI-IV-indexpoäng och FTF-R-poäng utfördes sex separata multipla logistiska regressionsanalyser med följande FTF-R-domän valda som beroende variabler: motoriska funktioner, perception, exekutiva funktioner, minne, språk och inlärning. Eftersom WISC-V och WPPSI-IV följer samma indexstruktur slogs data för dessa mätinstrument ihop och användes som en enda variabel. Som prediktorer i de statistiska analyserna fungerade *Verbalt Index*, *Visuospatialt Index*, *Fluid Index*, *Arbetsminnesindex* och *Snabbhetsindex*. Logistisk regression användes som analysmetod

eftersom antagandet om normalfördelning för FTF-R-poängen inte uppfylldes. FTF-R-datat påvisade en stark golveffekt med få höga värden, som därmed genererade liten variation. Data organiserades in i dikotoma variabler inför de logistiska regressionsanalyserna genom att utföra en klyvning vid medianvärdet för respektive domäner.

För att undersöka sambandet mellan NEPSY-II-domäner och FTF-R-poäng utfördes ytterligare sex separata multipla logistiska regressionsanalyser, med de två NEPSY-II-domänerna Språkfunktioner och Minnes- och inlärningsfunktioner som prediktorer. De två NEPSY-II-domänerna konstruerades utifrån de sju inkluderade deltesten i The FinSwed Study, enligt manualens domänsstruktur (Korkman et al., 2011). FTF-R-domänerna motoriska funktioner, perception, exekutiva funktioner, minne, språk och inlärning fungerade som beroende variabler.

Ett exakt chi-kvadrattest gjordes för att undersöka hur samplet var skattat på FTF-R i jämförelse med de danska normerna. I enlighet med manualens föreskrifter sattes ett gränsvärde vid den 90:e percentilen som en indikator på kliniska problem inom någon FTF-R domän. Den förväntade frekvensen av kliniska problem var således 10 %. Ett Mann-Whitney-U-test utfördes för att jämföra skillnader i föräldraskattningar mellan finlandssvenska pojkar och flickor, och mellan enspråkiga och tvåspråkiga deltagare. Alla statistiska analyser utfördes med IBM SPSS software (version 28.0, IBM Corp., Armonk, NY).

Resultat

Sambandet mellan Wechsler Index och FTF-R domänerna motorik, perception, exekutiva funktioner, minne språk och inlärning

Regressionsmodellen var signifikant för analysen med FTF-R-perceptionsdomänen som beroende variabel (-2 log-likelihood = 211.82, p= .014). Vid närmare undersökning av prediktorerna framkom det att höga poäng på Snabbhetsindexet signifikant förutspådde mer svårigheter i FTF-R-perceptionsdomänen. Dessutom förutspådde ett högt Visuospatialt Index signifikant färre svårigheter i FTF-R perceptionsdomänen.

Sambanden mellan NEPSY-II domän och FTF-R domänerna motorik, perception, exekutiva funktioner, minne språk och inlärning

Modellerna var vidare signifikanta för analyser med FTF-R-domänerna motoriska färdigheter (-2log likelihood=215.205, p = .029), perception (-2log likelihood= 218.433, p = .022), minne (-2log likelihood= 197.676, p =.003.) och inlärning (-2log likelihood=133.661, p = .009) som beroende variabler. Vid närmare undersökning av prediktorerna framkom det att höga poäng i NEPSY-II-domänen Språkliga funktioner signifikant förutspådde mindre svårigheter i FTF-R-domänerna motoriska färdigheter, minne och inlärning. Högre poäng på

NEPSY-II-domänen Minnes- och inlärningssfunktioner förutspådde å andra sidan mindre svårigheter i FTF-R-perceptionsdomänen.

Föräldraskattning a finlandssvenskar i åldrarna 6-17

Fördelningen av finlandssvenska barn vars föräldrar skattade dem över det kliniska gränsvärdet vid 90:e percentilen på FTF-R varierade från 2,8 % till 14,2 %, beroende på domän. Poängen på de flesta domäner och subdomäner rörde sig omkring den förväntade fördelningen på 10 %. Signifikant färre barn än förväntat skattades över det kliniska gränsvärdet på följande FTF-R-subdomäner: *tidsuppattning*, *uppfattning av former och figurer*, *räkning* och *lära sig saker och använda kunskap i skolan*. Finlandssvenska pojkar skattades ha mer svårigheter relaterade till FTF-R-domänerna motoriska färdigheter (Mdn_{boys}=0.12000, Mdn_{Girls}=0.06000, U = 2707.500, z= -2.656, p= 0.008), exekutiva färdigheter (Mdn_{boys} =0.28000 =, Mdn_{Girls} = 0.16000, U =2799.000, z= -2.091, p= 0.037), språk (Mdn_{boys} =0,05000 =, Mdn_{Girls} = 0.000, U 2760.000, z= -2.121, p= 0.034), inlärning (Mdn_{boys} =0.11000=, Mdn_{Girls} 0.07000, U=1013.500, z= -2.425, p= 0.015) och sociala färdigheter (Mdn_{boys} = 0,07000 =, Mdn_{Girls} = 0.04000, U=2406.500, z=-2.768 , p= 0.006). Tvåspråkiga barn skattades ha mer svårigheter relaterade till FTF-R språkdomänen än enspråkiga ($Mdn_{bilingual}$= 0.0500, $Mdn_{monolingual}$= 0.000 U= 2660,500 z= -2.244, p= 0.025).

Diskussion

Studiens huvudsyfte var att undersöka sambandet mellan finlandssvenska barns kognitiva testresultat och föräldraskattningar genom FTF-R. Resultaten från denna studie visade att högre NEPSY-II-poäng inom domänen Språkliga funktioner förutspådde signifikant mindre svårigheter i FTF-R-domänerna motoriska färdigheter, minne och inlärning. Vidare förutspådde högre NEPSY-II-poäng på Minnes- och inlärningsdomänen mindre svårigheter i FTF-R-perceptionsdomänen. Få samband framkom mellan Wechsler-indexen och FTF-R-domänpoäng. Hypotesen var att signifikanta samband skulle uppstå mellan teoretiskt motsvarande domän från de kognitiva testen och FTF-R. Endast sambandet mellan Wechsler Visuospatialt-Index och FTF-R-perceptionsdomänen gav stöd åt hypotesen. Högre snabbhetsindex förutspådde mera svårigheter i FTF-R-perceptionsdomänen.

Denna studie ger inget starkt belägg för att det skulle finnas samband mellan de motsvarande domänerna från de vanligaste kognitiva testen inom barnpsykologisk klinisk praxis och föräldraformuläret FTF-R. Detta går inte i linje med tidigare forskning (Trillingsgaard m.fl., 2004; Koivisto m.fl., 2012; Korkman m.fl, 2004;). Skillnaden skulle delvis kunna härledas till att tidigare studier är utförda på kliniska sampel, men också till skillnader mellan testinstrument, då tidigare studier använt sig av äldre versioner av WISC

och FTF. Valet att klyva FTF-R-poängdata i två dikotoma variabler genom en median split kan även ha påverkat resultaten. Generellt sett erhöll samplet höga poäng på de kognitiva testen. Det är tänkbart att kognitivt högpresterande barn fungerar väl i vardagen och inte erhåller höga poäng på ett sådant formulär som FTF-R. Detta skapade låg variation i data.

Att jämföra kognitiva testresultat med frågeformulärsdata kan vara utmanande. Den psykometriska basen för indexen från WISC-V och WPPSI-IV vilar på faktoranalytisk grund, medan FTF-R-formulärets domäner endast är teoretiska i grunden. Tidigare faktoranalytiska studier med FTF-R-formuläret har föreslagit en annan domänstruktur än den rådande (Bohlin & Janols., 2004; Bruce et al., 2006; Lambek & Trillingsgaard., 2015), där delvis färre domäner har föreslagits, och med annan intern konsistens än vad det rådande formuläret uppvisar. Således är det möjligt att den rådande FTF-R-modellen inte endast tangerar utsatta efterfrågade kognitiva domäner, vilket gör det möjligt att samband till mer isolerade kognitiva konstrukt, såsom Wechslerindexen, försvagas. Toplak m.fl (2013) påpekade att frågeformulär som mäter vardagsfunktion egentligen är ett mått på typisk prestation, medan kognitiva test är ett mått på maximal prestation. Typisk prestation innefattar hur en individ typiskt beter sig i en specifik kontext, medan ett test som mäter maximal prestation kräver att en individ presterar på en mycket krävande och mycket specifik uppgift som påvisar individens maximala kapacitet. Utifrån detta kan man ställa hypotesen att test som mäter vardagsfunktion egentligen mäter en annan typ av kognitivt fungerande än vad kognitiva test gör. Denna studie understryker att fastän FTF-R formuläret inte verkar återspegla hur kognitiva styrkor och svagheter som framkommer på kognitiva test syns i vardagen, så kan FTF-R-formuläret förse kliniker med ytterligare information om barns fungerande som inte framkommer på kognitiva test.

Ett ytterligare syfte med denna studie var att undersöka hur finlandssvenska barn skattas av sina föräldrar på FTF-R i jämförelse med de officiella danska normerna. Den här studien understryker att de rådande officiella danska FTF-R-normerna verkar fungera också i ett finlandssvenskt sammanhang, fastän finlandssvenskar verkar skattas ha färre problem i perceptions- och inlärningsdomänerna än den danska normgruppen. Dessa skillnader skulle kunna härledas till skillnader i skolsystemet mellan Finland och Danmark. Finlandssvenskar presterade exempelvis bättre än sina danska jämnåriga i den senaste PISA- undersökningen (Undervisnings-och kulturministeriet 2019; OECD, 2019a; OECD, 2019b, OECD, 2019c). Denna studie hade även striktare inklusionskriterier än den danska normgruppsstudien (Trillingsgaard et al., 2015). Detta kan ha medfört att denna studies övergripande sampelprestation var högre än i den danska normgruppstudien, som antagligen till följd av

mindre strikta inklusionskriterier hade ett sampel med större variation. Finlandssvenska pojkar skattades ha mera svårigheter på flera FTF-R-domäner än finlandssvenska flickor, vilket delvis också skulle kunna härledas till de senaste PISA-resultaten, som visade att finlandssvenska flickor klarar sig bättre i skolan än finlandssvenska pojkar (Undervisnings- och kulturministeriet, 2019). Skillnaden i skattning mellan enspråkiga och tvåspråkiga på FTF-R-språkdomänen bör tas i beaktande i kliniska sammanhang. Tidigare forskning pekar på att tvåspråkiga uppvisar sämre expressiva språkfärdigheter än enspråkiga då endast ett av deras språk mäts (Thordadottir m.fl., 2006; Thordadottir, 2011), och det är möjligt att föräldrarna i denna studie endast tänkt på barnens färdigheter i svenska då de fyllt i FTF-R, eftersom endast den svenska versionen av FTF-R skickades ut.

Denna studie har några begränsningar. Exempelvis kan föräldrar både över- och underskatta sina barns förmågor (Koivisto m.fl., 2012; Lind m.fl., 2009), och är således eventuellt inte alltid reliabla skattare. Dessutom utfördes denna studie på ett kognitivt välfungerande sampel som. Det är möjligt att samplets generellt höga kognitiva fungerande genererade en gruppprestation med liten variation, vilket föranledde statistiska analyser som frambringade liten variation. Resultaten bör därmed tolkas med försiktighet. Det är slutligen även möjligt att denna studie skulle ha kunnat erhålla mer specifik information om sambandet mellan kognitiva testresultat och föräldraskattningar om ett mindre åldersintervall hade undersökts. Resultaten från denna studie kan erbjuda information om hur FTF-R fungerar i ett sampel med brett åldersspann, men kan inte belysa hur specifika mönster i olika utvecklingsstadier ser ut, om sådana finns.

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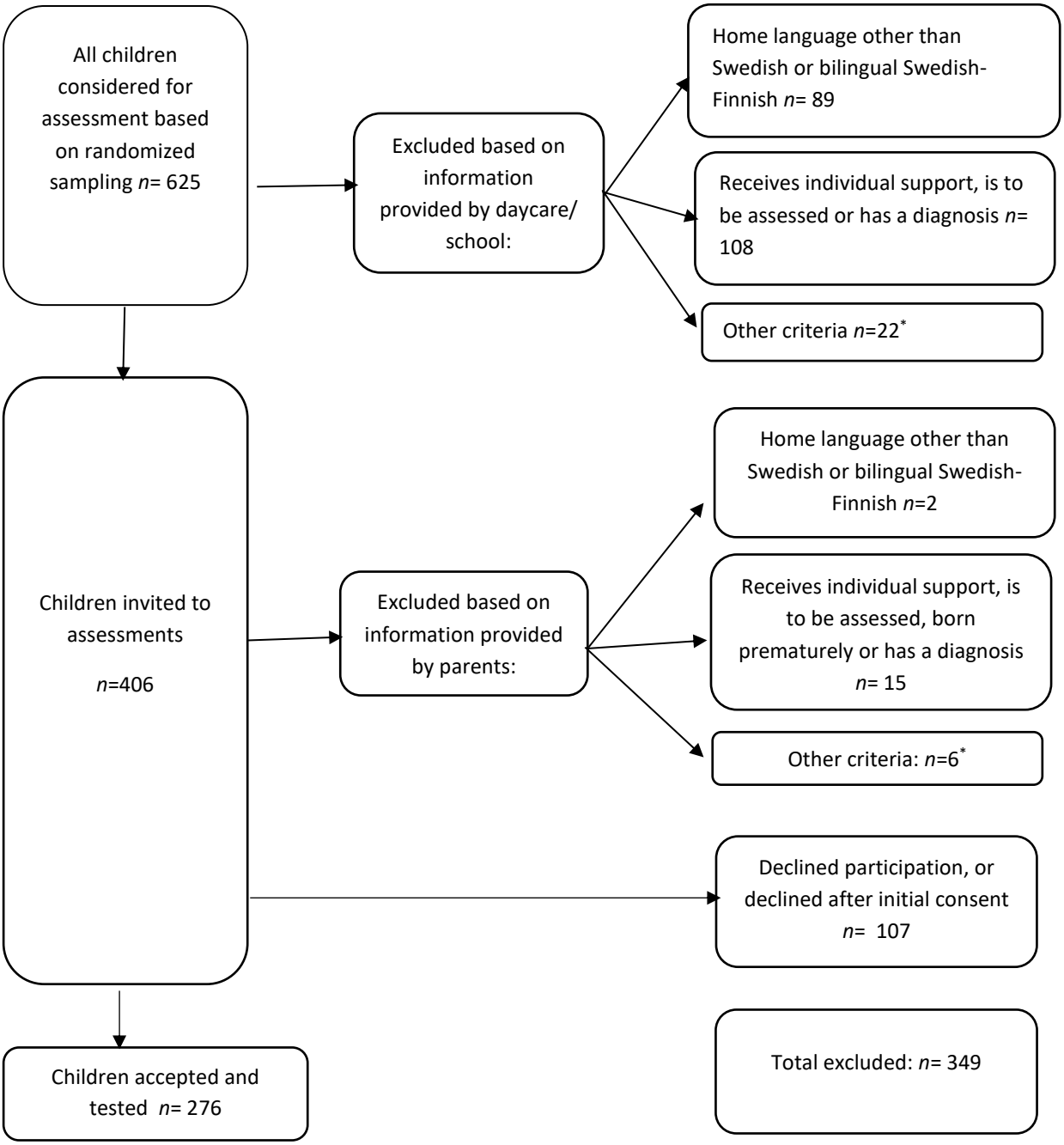
Appendix A

Flowchart of the exclusion process in The FinSwed Study



*Other criteria were: birth year not included in inclusion criteria, preschool children aged seven, or teacher's evaluation that the child would not cope well with assessments.

Appendix B

Mean scores for FTF-R general domains, subdomains, and items

	M	SD	Range	*N*
Motor skills	0.15	0.18	0.00–0.94	168
Motor skills - gross motor skills	0.15	0.25	0.00–1.14	168
1. Difficulty acquiring new motor skills. such to ride a bike or swim	0.15	0.40	0.00–2.00	168
2. Difficulty throwing or catching a ball	0.10	00.32	0.00–2.00	168
3. Difficulty running fast	0.15	0.40	0.00–2.00	168
4. Has difficulties in/ does not like to participate in ball sports	0.34	0.57	0.00–2.00	168
5. Balance problems. eg. has difficulty standing on one leg	0.09	0.29	0.00–1.00	168
6. Often stumbles or falls	0.14	0.37	0.00–1.00	168
7. Clumsy or awkward movements	0.13	0.35	0.00–1.50	168
Motor skills -fine motor skills	0.15	00.20	0.00–1.00	168
8. Does not like to draw/ has difficulty drawing figures that represents something	0.26	0.50	0.00–2.00	168
9. Difficulty handling. assembling and manipulating small objects	0.05	0.21	0.00–1.00	168
10. Difficulty pouring water into a glass without spilling	0.07	0.25	0.00–0.00	168
11. Often spills food onto clothes or table when eating	0.31	0.51	0.00–2.00	168
12. Difficulty using knife and fork	0.22	0.44	0.00–2.00	168
13. Difficulty buttoning or tying shoe–laces	0.22	0.47	0.00–2.00	168
14. Difficulty using a pen	0.05	0.23	0.00–1.00	168
15. Has not developed clear hand preference. i.e.. is neither clearly right–handed nor left–handed	0.05	0.22	0.00–1.00	168
16. Writing is slow and laborious	0.18	0.40	0.00–2.00	168
17. Immature pencil–grip. holds the pen in an unusual manner	0.07	0.27	0.00–2.00	168
Executive functions	0.30	00.31	0.00–1.36	165
Attention and Concentration	0.36	00.39	0.00–1.56	165
18. Often fails to pay close attention to details or makes careless mistakes	0.38	0.53	0.00–2.00	165
19. Often has difficulty sustaining attention in tasks or play activities	0.33	0.54	0.00–2.00	165
20. Often does not seem to listen when spoken to directly	0.42	0.55	0.00–2.00	165
21. Problems following instructions and fails to finish schoolwork. chores. or duties	0.21	0.46	0.00–2.00	165
22. Often has difficulty organizing tasks and activities	0.31	0.52	0.00–2.00	165
23. Often avoids. dislikes. or is reluctant to engage in tasks that require sustained mental effort (such as homework)	0.42	0.54	0.00–2.00	165
24. Often loses things necessary for tasks or activities (e.g.. toys. school equipment. pencils. books. or tools)	0.38	0.54	0.00–2.00	165
25. Is often easily distracted by extraneous stimuli (e.g.. irrelevant sounds like other people talking. cars driving by)	0.36	0.59	0.00–2.00	165
26. Is often forgetful in daily activities	0.41	0.53	0.00–2.00	165
Overactivity and impulsivity	0.27	0.35	0.00–1.67	165
27. In constant motion (fidgets with fingers. plucks at things etc)	0.40	0.63	0.00–2.00	165
28. Difficulty remaining seated	0.37	0.61	0.00–2.00	165
29. Often runs about or climbs excessively in situations in which is inappropriate	0.16	0.44	0.00–2.00	165
30. Difficulty playing calmly or quietly	0.12	0.33	0.00–1.00	165
31. Is often ”on the go” or often acts as if ”driven by a motor”	0.21	0.46	0.00–2.00	165
32. Often talks excessively	0.39	0.60	0.00–2.00	165

33. Often blurts out answers before the question has been completed	0.23	0.47	0.00–2.00	165
34. Difficulty awaiting turns	0.24	0.48	0.00–2.00	165
35. Often interrupts or intrudes on others (e.g.. butts into conversations or games)	0.25	0.46	0.00–2.00	165
Passivity and inactivity	0.28	0.35	0.00–1.75	165
36. Difficulty getting started on tasks/ activites	0.43	0.54	0.00–2.00	165
37. Difficulty completing a task/ activity	0.24	0.45	0.00–2.00	165
38. Often ”in own world” or daydreaming	0.28	0.52	0.00–2.00	165
39. Seems slow. inert. or lacking energy	0.16	0.39	0.00–2.00	165
Planning/ organizing	0.25	0.37	0.00–1.67	165
40. Difficulty understanding consequences of own actions (e.g.. climbs in dangerous places. careless in traffic)	0.18	0.44	0.00–2.00	165
41. Difficulty planning and preparing for tasks (e.g.. collecting equipment needed for an outing or for school)	0.31	0.51	0.00–2.00	165
42. Difficulty completing sequential tasks (e.g.. young children: getting dressed in the morning without constant reminders; older children: completing home work without constant reminders)	0.25	0.50	0.00–2.00	165
Perception	0.12	0.15	0.00–0.79	165
Perception of space and directions	0.08	0.15	0.00–0.80	165
43. Difficulty finding his/her way around (even in well known places)	0.07	0.28	0.00–2.00	165
44. Seems disturbed by height differences (even slight) such as in connection with climbing stairs etc	0.05	0.24	0.00–2.00	165
45. Difficulty judging distance or size	0.07	0.25	0.00–1.00	165
46. Difficulty comprehending orientation and spatial directions (young children turning clothes back to front. older children confusing letters such as b. p. d. or digits such as 6. 9)	0.14	0.37	0.00–2.00	165
47. Bumps into other people. especially in narrow places	0.05	0.22	0.00–1.00	165
Concept of time	0.22	0.35	0.00–2.00	165
48. Poor concepts of time. e.g.. does not have an intuitive feeling for how long “five minutes” or “one hour” take or is uncertain about how long ago something happened	0.30	0.48	0.00–2.00	165
49. Has only a vague idea about what time it is. whether it is morning or afternoon. whether it is time or not to go to school	0.09	0.33	0.00–2.00	165
50. Repeatedly asks about when something is going to happen. e.g.. how much time is left before an outing or before it is time to go to school	0.31	0.56	0.00–2.00	165
51. Can read the clock mechanically but does not understand the actual time concept	0.17	0.39	0.00–2.00	165
Perception of own body	0.12	0.19	0.00–.1.00	165
52. .Does not have a sense of how clothes fit. does not straighten socks or trousers that have slid down	0.067	0.25	0.00–1.00	165
53. Surprisingly poor perception of cold. pain etc	0.11	0.34	0.00–2.00	165
54. Poor body awareness (uncertain of size of own body in relation to the environment. e.g.. bumps into or tumbles over things without intention to do so)	0.09	0.29	0.00–1.00	165
55. Oversensitive to touch (is irritated by tight clothing. perceives soft touch as rough etc)	0.23	0.50	0.00–2.00	165
56. Difficulty imitating other people’s movements	0.07	0.25	0.00–1.00	165
Perception of visual forms and figures	0.04	0.12	0.00–0.75	164
57. Tends to misinterpret pictures; e.g.. may perceive a picture of a fried egg as that of a flower	0.01	0.08	0.00–1.00	164

58. Difficulty noticing small differences in shapes. figures. words and patterns that look alike	0.04	0.19	0.00–1.00	164
59. Difficulty drawing pictures such as that of a car. a house etc (compared with children of similar age)	0.07	0.26	0.00–1.00	164
60. Difficulty with jigsaw puzzles	0.06	0.24	0.00–1.00	164
Memory	0.15	0.21	0.00–1.09	164
61. Difficulty remembering information about personal data. such as date of birth. home address etc	0.08	0.27	0.00–1.00	164
62. Difficulty remembering the names of other people (e.g.. name of teacher. school peers)	0.05	0.23	0.00–1.00	164
63. Difficulty remembering the names of weekdays. months and seasons	0.11	0.33	0.00–2.00	164
64. Difficulty remembering non–personal facts learned at school (e.g.. historic events. chemical formulas etc)	0.12	0.36	0.00–2.00	164
65. Difficulty remembering what has occurred recently. as who has phoned or. what he/she ate a few hours ago etc	0.13	0.35	0.00–2.00	164
66. Difficulty remembering events that occurred some time ago. such as what happened on a trip. what Christmas presents he/she got etc	0.03	0.17	0.00–1.00	164
67. Difficulty remembering where he/she put things	0.51	0.56	0.00–2.00	164
68. .Difficulty remembering appointments with peers or what home–work he/she has got	0.15	0.37	0.00–2.00	164
69. Difficulty learning rhymes. songs. multiplication tables etc by heart	0.13	0.37	0.00–2.00	164
70. Difficulty remembering long or multiple–step instructions	0.27	0.52	0.00–2.00	164
71. Difficulty acquiring new skills. such as rules of new play or games	0.06	0.24	0.00–1.00	164
Language	0.09	0.16	0.00–1.480	164
Comprehension of language	0.13	0.27	0.00–2.000	164
72. Difficulty understanding explanations and instructions	0.11	0.33	0.00–2.00	164
73. Difficulty following stories read aloud	0.07	0.30	0.00–2.00	164
74. Difficulty perceiving what other people say (often says “what?”. ”what do you mean?”)	0.20	0.44	0.00–2.00	164
75. Difficulty with abstract concepts such as “the day after tomorrow”. ”in the right order”	0.15	0.37	0.00–2.00	164
76. Tends to misinterpret what is said	0.13	0.37	0.00–2.00	164
Expressive language	0.07	0.16	0.00–1.23	162
77. Uncertain of speech sounds and tends to misarticulate words	0.01	0.31	0.00–2.00	162
78. Difficulty learning the names of colours. people. letters etc	0.02	0.16	0.00–1.00	162
79. Difficulty finding words or explaining to other people. says: “the. the. the ...”	0.07	0.28	0.00–2.00	162
80. Tends to remember words incorrectly. says ”armbow” instead of ”elbow”. refers to ”pointer” instead of ”index” etc	0.06	0.26	0.00–2.00	162
81. Difficulty explaining what he/she wants	0.11	0.33	0.00–2.00	162
82. Difficulty speaking fluently without any breaks	0.05	0.22	0.00–1.50	162
83. Difficulty expressing him/herself in whole sentences. in grammatically correct sentences. or inflecting words	0.05	0.25	0.00–2.00	162
84. Pronounces specific sounds incorrectly (has a lisp. difficulty pronouncing the sound of ”r”. nasal voice etc)	0.11	0.40	0.00–2.00	162
85. Difficulty pronouncing complex words such as ”electric”. ”screwdriver” etc	0.10	0.31	0.00–2.00	162
86. Has a hoarse voice	0.03	0.18	0.00–1.50	162
87. Stutters	0.02	0.14	0.00–1.50	162

88. Speaks so rapidly that it is difficult to comprehend what he/she is saying	0.04	0.19	0.00–1.00	162
89. Has a muddled speech	0.13	0.38	0.00–2.00	162
Verbal communication	0.10	0.24	0.00–1.70	162
90. Difficulty telling about experiences or situations so that the listener understands (e.g.. what happened during the day or during the summer vacation)	0.12	0.37	0.00–2.00	162
91. Difficulty keeping ”on track” when telling other people something	0.09	0.31	0.00–2.00	162
92. Difficulty taking part in a conversation. e.g.. problems shifting from listening to talking	0.07	0.26	0.00–1.00	162
Learning	0.17	0.24	0.00–1.40	106
Reading and writing	0.20	0.32	0.00–1.90	106
93. Acquiring reading skills is more difficult than expected considering his/her ability to learn other things	0.10	0.34	0.00–2.00	106
94. Has difficulties to understand what he/she is reading	0.15	0.41	0.00–2.00	106
95. Difficulty reading aloud at normal speed (reads too slowly. too quickly. or fails to read fluently)	0.15	0.40	0.00–2.00	106
96. Does not like reading (e.g.. avoids reading books)	0.44	0.67	0.00–2.00	106
97. Makes guesses while reading	0.12	0.33	0.00–1.00	106
98. Difficulty spelling	0.15	0.41	0.00–2.00	106
99. Has difficulties shaping letters and to write neatly	0.25	0.49	0.00–2.00	106
100. Difficulty formulating him/herself in writing	0.19	0.44	0.00–2.00	106
Arithmetics	0.10	0.22	0.00–1.40	106
101. Difficulty acquiring basic math skills (addition. subtraction; i.e.. plus. minus)	0.02	0.14	0.00–1.00	106
102. Difficulty with math problems given in written form	0.19	0.46	0.00–2.00	106
103. Difficulty learning and applying various mathematical rules	0.07	0.29	0.00–2.00	106
104. Difficulty learning and use multiplication tables Difficulty with mental arithmetic	0.08	0.27	0.00–1.00	106
105. Difficulty with mental arithmetic	0.14	0.34	0.00–1.00	106
Learning new things and applying knowledge in school	0.06	0.16	0.00–1.00	106
106. Difficulty understanding verbal instructions	0.11	0.35	0.00–2.00	106
107. Difficulty understanding or using abstract terms. e.g.. terms relating to size. volume. spatial directions	0.08	0.27	0.00–1.00	106
108. Difficulty participating in discussions with other children	0.03	0.17	0.00–1.00	106
109. Difficulty learning facts or acquiring knowledge about the surrounding world.	0.04	0.19	0.00–1.00	106
110. Exceptional knowledge or skills in some area	1.02	0.80	0.00–2.00	106
111. Is good at artistic or practical things (playing an instrument. drawing. painting. construction work)	1.26	0.82	0.00–2.00	106
Problem solving in school	0.23	0.32	0.00–1.80	160
112. Difficulty planning and organising activities. (e.g.. the order in which things should be done. how much time is needed to manage a specific task)	0.28	0.53	0.00–2.00	160
113. Difficulty shifting plan or strategy when this is required (e.g.. when the initial approach failed)	0.47	0.62	0.00–2.00	160
114.. Difficulty comprehending explanations and following instructions given by adults	0.18	0.45	0.00–2.00	160
115. Difficulty solving abstract tasks (i.e.. is dependent on learning material that can be seen or touched)	0.15	0.41	0.00–2.00	160
116. Difficulty keeping on trying and completing tasks. often leaves them half finished	0.15	0.35	0.00–1.00	160
117.. Unmotivated for school work or comparable learning situations	0.37	0.55	0.00–2.00	160

118. Learning is slow and laborious	0.10	0.35	0.00–2.00	160
119. Does things too quickly. hastily. or in a hurry	0.31	0.48	0.00–2.00	160
120. Can/will not take responsibility for own actions. needs a lot of supervision	0.14	0.42	0.00–2.00	160
121. Very much in need of support. wants to know whether he/she is performing well	0.16	0.39	0.00–2.00	160
Social skills	0.10	0.15	0.00–.850	160
122. Does not understand other people's social cues. e.g.. facial expressions. gestures. tone of voice. or body language	0.06	0.23	0.00–1.00	160
123. Difficulty understanding the feelings of other people	0.15	0.38	0.00–2.00	160
124. Difficulty responding to the needs of other people	0.15	0.39	0.00–2.00	160
125. Difficulty verbally explaining emotions when feeling lonely. being bored etc	0.22	0.42	0.00–2.00	160
126. Speaks with a monotonous or strange voice	0.04	0.19	0.00–1.00	160
127. Difficulty expressing emotions and reactions with facial gestures or body language	0.07	0.25	0.00–1.00	160
128. Markedly "old fashioned" style?	0.41	0.61	0.00–2.00	160
129. Difficulty behaving as expected by peers	0.08	0.27	0.00–1.00	160
130. Difficulty realising how to behave in different social situations. such as when visiting relatives together with parents. when visiting friends. seeing a doctor. going to the cinema. etc	0.14	0.35	0.00–1.00	160
131. Is perceived by peers as different. odd. or eccentric	0.05	0.22	0.00–1.00	160
132. Unintentionally makes a fool of himself so that parents feel embarrassed or peers start laughing	0.06	0.23	0.00–1.00	160
133. Often seems to lack common sense	0.01	0.14	0.00–1.00	160
134. Has a weak sense of humour	0.04	0.23	0.00–2.00	160
135. Blurts out socially inappropriate comments	0.06	0.23	0.00–1.00	160
136. Difficulty comprehending rules or prohibitions	0.10	0.31	0.00–2.00	160
137. Often quarrels with peers	0.08	0.27	0.00–1.00	160
138. Difficulty understanding and respecting other people's rights. for example. that younger children need more help than older ones. and that parents should be left alone when they demand it. etc.	0.13	0.37	0.00–2.00	160
139. Difficulty in group or team activities or games. invents new rules for own benefit	0.13	0.35	0.00–2.00	160
140. Difficulty making friends	0.13	0.37	0.00–2.00	160
141. Does not often interact with peers	0.05	0.25	0.00–1.00	160
142. Difficulty to participate in group activities	0.09	0.31	0.00–2.00	160
143. Not accepted by other children to participate in their games	0.08	0.31	0.00–2.00	160
144. Does not care for physical contact such as hugs	0.13	0.35	0.00–2.00	160
145. Has one or a few interests that take up considerable time and that impinge on relations with family and friends	0.07	0.24	0.00–1.50	160
146. Repeats or gets stuck in seemingly meaningless behaviours or activities	0.06	0.31	0.00–2.00	160
147. Gets very upset by tiny changes in daily routines	0.15	0.42	0.00–2.00	160
148. Eye contact in face to face situations is abnormal or missing	0.02	0.14	0.00–1.00	160
Psychological problems	0.11	0.14	0.00–.880	160
Internalizing	0.12	0.19	0.00–1.17	160
149. Poor self–confidence	0.34	0.56	0.00–2.00	160
150. Seems to be unhappy. sad. depressed	0.13	0.36	0.00–2.00	160
151. Often complains about feelings of loneliness	0.10	0.32	0.00–2.00	160
152. Has tried to inflict bodily damage to him–/herself or talks about that	0.03	0.16	0.00–1.00	160
153. Has a poor appetite	0.14	0.38	0.00–2.00	160

154. Often expresses a feeling of being worthless or inferior to other children	0.13	0.35	0.00–2.00	160
155. Often complains about bellyaches. headaches. breathing difficulties or other bodily symptoms	0.22	0.47	0.00–2.00	160
156. Appears tense and anxious or complains about being nervous	0.10	0.32	0.00–2.00	160
157. Becomes very anxious or unhappy when leaving home e.g.. when setting to school	0.05	0.27	0.00–2.00	160
158. More sleeping problems than most children of similar age	0.09	0.35	0.00–2.00	160
159. Often has nightmares	0.05	0.25	0.00–2.00	160
Externalizing	0.13	0.20	0.00–1.080	160
160. Walks in sleep or has nocturnal attacks when he/she cannot be ”reached” or comforted	0.04	0.19	0.00–1.00	160
161. Often loses temper	0.32	0.54	0.00–2.00	160
162. Often argues with adults	0.14	0.38	0.00–2.00	160
163. Often refuses to follow the instructions of adults	0.17	0.39	0.00–2.00	160
164. Often teases others by deliberately doing things that are perceived as provocative	0.16	0.38	0.00–2.00	160
165. Often blames others for own mistakes or bad actions	0.25	0.47	0.00–2.00	160
166. Is easily offended. or disturbed by others	0.27	0.48	0.00–2.00	160
167..Often gets into fights	0.06	0.23	0.00–2.00	160
168. Is cruel to animals	0.00	0.00	0.00–0.00	160
169. Lies and cheats	0.10	0.29	0.00–1.00	160
170. Steals things at home	0.02	0.18	0.00–2.00	160
171. Often destroys the belongings of other family members or other children	0.03	0.17	0.00–1.00	160
172. Has recurrent episodes of a few days with extremely high activity level and flight of ideas	0.02	0.14	0.00–1.00	160
173. Has recurrent periods of obvious irritability	0.10	0.38	0.00–2.00	160
Obsessive actions or thoughts	0.06	0.14	0.00–1.000	160
174. Compulsively repeats some activities or has habits that are very difficult to change	0.07	0.28	0.00–2.00	160
175. Has obsessive/fixed ideas	0.03	0.16	0.00–1.00	160
176. Has involuntary movements. tics. twitches or facial grimaces	0.02	0.18	0.00–2.00	160
177. Repeats meaningless movements. such as head shaking. body jerking and finger drumming	0.03	0.16	0.00–1.00	160
178. Emits unmotivated sounds such as throat clearing. sneezing. swallowing. barking. shouting etc	0.05	0.25	0.00–2.00	160
179. Difficulty keeping quiet. e.g.. whistles. hums. mumbles	0.18	0.46	0.00–2.00	160
180. Repeats words or parts of words in a meaningless way	0.03	0.24	0.00–2.00	160
181. Uses dirty words or language in an exaggerated way	0.06	0.26	0.00–2.00	160

Pressmeddelande

Föräldraskattad vardagsfunktion hos 6-17 åringar och dess samband med kognitiva testresultat

Pro-gradu avhandling i psykologi

Fakulteten för humaniora, psykologi och teologi

Resultaten på en pro-gradu avhandling i psykologi vid åbo akademi tyder på att det inte finns några starka samband mellan kognitiva testresultat och föräldraskattad vardagsfunktion mätt via föräldraformuläret 5-15R hos finlandssvenska barn och ungdomar med typisk utveckling. I psykologiska utredningar av barns kognitiva förmågor används ofta föräldraskattningar jämsides standardiserade kognitiva test för att erhålla en så mångfacetterad bild av barnets fungerande som möjligt. Resultaten från denna studie tyder på att 5-15R inte kan förklara hur relativa svårigheter som syns i kognitiva test hos barn med typisk utveckling ser ut i vardagen. Däremot kan 5-15R frambringa annan typ av information än vad som framkommer i kognitiva test. I den föreliggande studien konstaterades det även att frågeformuläret 5-15R, med sitt danska normdata, verkar tillämpbart även i en finlandssvensk kontext.

Pro-gradu avhandlingen var en understudie till forskningsprojektet *Finlandssvenska elevers prestationer i svenska test* (FEST), vars syfte var att undersöka finlandssvenska elevers prestationer på rikssvenska kognitiva test. I den föreliggande studien deltog 168 finlandssvenska familjer, från vilka data samlades in via elektroniska frågeformulär.

Avhandlingen utfördes av Charlotta Ohls under handledning av Johanna Rosenqvist, PsD, Anu Haavisto, PsD och Professor Matti Laine.

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