

Predicting Service Use for Mental Health Problems Among Young Children



WHAT'S KNOWN ON THIS SUBJECT: A large majority of preschool and young school age children with mental health problems do not receive services and little is known about the determinants of service use in this age group.



WHAT THIS STUDY ADDS: Behavioral, not emotional, disorders increase service use but only if impairment is present. Such impairment may operate via increased parental burden and parent and caregiver problem recognition. Low socioeconomic status has an independent effect increasing service use.

abstract

OBJECTIVE: To identify sociodemographic, child, parent, and day care provider factors at age 4 that predict Norwegian children's service use for mental health problems at age 7.

METHOD: Two birth cohorts of 4-year-old children and their parents living in the city of Trondheim, Norway, were invited (82% consented). We successfully interviewed 995 parents among 1250 drawn to participate using the Preschool Age Psychiatric Assessment to set diagnoses and record parental burden and service use. Information concerning sociodemographics, child impairment, parental social support, and child need for mental health services according to parents, day care teacher, and health nurse were obtained.

RESULTS: Rate of service use among those with a behavioral or emotional disorder was 10.7% at age 4 and 25.2% at age 7. Behavioral disorders (odds ratio [OR] 2.6, confidence interval [CI] 1.3–5.3), but not emotional disorders, predicted service use. When adjusted for incapacity (OR 1.3, CI 1.2–1.6), disorders were no longer predictive. Incapacity, in turn, was not predictive once parental burden (OR 1.1, CI 1.0–1.1) and parents' (OR 2.7, CI 1.0–7.9) and day care teachers' (OR 2.1, CI 1.4–3.2) judgment of child need of help were included. Lower socioeconomic status predicted more service use over and beyond these factors (OR 3.0, CI 1.5–6.1).

CONCLUSIONS: Behavioral disorders may instigate service use if they result in impairment, and such impairment may operate via increased parental burden and parent and caregiver problem recognition. Service use may be increased through effective screening programs and efforts to increase day care teachers' recognition of emotional problems. *Pediatrics* 2014;133:1054–1060

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KEY WORDS

preschool, service use, impairment, impact, longitudinal

ABBREVIATIONS

CAMHS—child and adolescent mental-health service

CI—confidence interval

OR—odds ratio

SDQ—Strengths and Difficulties Questionnaire

SES—socioeconomic status

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Current population studies from the United States and Europe indicate that between 7% and 36% of preschool and young school-age children have a diagnosable psychiatric disorder,¹⁻³ and these rates are comparable to those of older school children and adolescents.⁴ The overall level of service use among preschool and young school-age children ranges from 3% to 20% among those with a mental disorder,^{1,5-7} a rate that may be even lower than for older school-age children.^{8,9} Because effective treatments are available for young children, efforts should be made to increase service use among those with unmet needs. Although important research has been carried out on older children's service use,^{9,10} there is remarkably little on young children. Such work is thus needed because service use for young children's mental health problems may be driven by factors other than those influencing service use by older children and adolescents. Furthermore, the mental health needs of young children may be different,¹ and, relative to parents of older children, parents may be more reluctant to label problems as symptoms of a psychiatric disorder when children are younger. These parents may experience less burden, partly because problems are still recent and/or are not severe enough to impair the life of the family. Finally, they may be more inclined to seek out nonprofessional advice. Hence, findings from studies of older children cannot simply be extrapolated downward. Two pediatric or community studies have addressed predictors of service use in young children: 1 US study identified comparatively older age of the child, having a diagnosis, family conflict, and referral from a pediatrician as factors increasing the odds of psychiatric service use,⁶ whereas a study from New Zealand found only hyperactivity to predict any help-seeking (including non-professional).¹¹

In the current research, we extend these 2 studies by examining a wide set of predictors stemming from theoretical models of health service use.^{12,13} Such models are, broadly speaking, of 2 (partly overlapping) types. The first may be termed "predictor models" addressing the question "Who will seek help?" Although there are notable differences between various predictor models, they converge in underlining the (1) medical needs of the person, (2) predisposing social factors, (3) personal enabling factors or barriers, (4) contextual enabling factors or barriers, and (5) use of alternatives to the formal service system. The second type of model, which can be termed "process models," conceptualize help-seeking as a process.^{12,13} Such models typically involve (1) a recognition phase in which the person labels the condition as a problem/disorder, (2) then an attribution-analysis phase focusing on the causes of the problem (eg, fate, genetics, bullying), and, finally, (3) a search phase in which problem solutions are explored. Solutions may involve self-help or help from others, professional or otherwise. Combining predictor and process models, we thus evaluated whether the following factors measured at age 4 predict service use at age 7, adjusting for age-4 service use: (1) child needs (ie, disorders and incapacity), (2) sociodemographic factors (ie, family composition, socioeconomic status [SES], child gender), (3) parental factors (ie, experience with own treatment and social support), and (4) burden and problem recognition (ie, perceived burden to parents, problem recognition by parents, day care teachers, and health nurses).

METHOD

Participants and Recruitment

Participants were part of the Trondheim Early Secure Study,² which includes 2

birth cohorts (born in 2003 or 2004) of 4-year-olds living in the city of Trondheim, Norway, and their parents, to which 2475 (82.0%) consented. The recruitment process and the follow-up are described elsewhere.^{2,14} The total difficulties score of the Strengths and Difficulties Questionnaire (SDQ) 4-16 version,^{15,16} was used for screening; scores were divided into 4 strata: 0 to 4, 5 to 8, 9 to 11, and 12 to 40. Defined proportions of parents in each stratum (0.37, 0.48, 0.70, and 0.89, respectively) were invited to participate ($n = 1250$), and we succeeded in interviewing 995 parents (79.6%). Parental educational level was generally high (17.2% some post high-school education, 58.3% college graduates). The dropout rate after consenting at the well-child clinic (T1) was unrelated to the SDQ ($t[1250] = 0.28$, $P = .78$) or gender ($\chi^2 = 0.23$, $df = 1$, $P = .37$). The mean age of the children was 4.4 years (SD 0.18) at T1 and 6.7 years (SD 0.25) at T2. Attrition from T1 to T2 was selective according to parental low SES ($\chi^2 = 12.89$, $df = 1$, $P < .001$), parents not living together ($\chi^2 = 9.95$, $df = 1$, $P = .002$), parental burden ($t[994] = 2.62$, $P = .009$), and perceived need for help according to the health nurse ($t[994] = 3.08$, $P = .002$). Collectively, these variables explained 2.1% of the attrition according to Cox and Snell proxy R^2 .

Setting

Trondheim is the third-largest city in Norway with approximately 200 000 inhabitants. The 3 main professional service provisions to children for mental health problems are (1) school counseling, which also delivers services to day care centers; (2) community health service and family physicians; and (3) child and adolescent mental health services (CAMHS). Health care for children is free in Norway. Official statistics indicate 1.8% of Norway's 0- to 5-year-olds received help from CAMHS

annually in 2008–2009; the comparable figure for 0- to 19-year-olds was 5.2%.¹⁷

Procedure

Research procedures were approved by the Regional Committee for Medical and Health Research Ethics. During the age-4 health checkup at the community health center, nurses informed parents about the study and obtained informed consent. Parents completed a structured diagnostic interview about their child's symptoms and day care teachers filled out a questionnaire. Retesting took place 2 years later (T2).

Measures

Service Use

Parents were interviewed with the Norwegian version of the Child and Adolescent Service Assessment,⁹ yielding information about services the child had received for symptoms being present during the preceding 3 months (see Table 1).

Need: Child Psychiatric Disorders

A semistructured psychiatric interview, The Preschool Age Psychiatric Assessment,¹⁸ was completed by parents. Use of a structured protocol involving both required and optional follow-up questions yields diagnoses generated by computer algorithms based on the *Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition*.¹⁹ Nine percent of the interview audio recordings were rescored by blinded raters. Three sets of disorders were identified: behavioral (attention-deficit/hyperactivity disorder, oppositional defiant disorders, and conduct disorder) ($k = 0.84$); emotional (major depression, dysthymia, depression not otherwise specified, separation anxiety disorder, generalized anxiety disorder, social phobia, specific phobia, agoraphobia, selective mutism, and obsessive-compulsive disorder) ($k = 0.86$); and "any disorder,"

TABLE 1 Population Estimates of Frequency of Service Use for Mental Health Problems at Age 4 and Age 7 (First Grade)

Type of Service Used	Age 4, $n = 995$		Age 7, $n = 795$	
	Percentage	95% CI	Percentage	95% CI
Any service	4.2	3.6–5.0	8.7	7.5–10.1
Health nurse	1.5	1.1–1.9	1.8	1.4–2.4
Community services	1.4	1.1–1.8	2.2	1.7–2.9
Family physician	0.7	0.4–1.1	2.2	1.6–2.9
Hospital	0.7	0.4–1.2	2.9	2.2–3.9
School counseling	0.7	0.5–1.0	1.9	1.3–2.6
Child and adolescent psychiatric outpatient clinic	0.2	0.1–0.4	1.2	0.9–1.8
Child protection services	0.2	0.1–0.4	0.1	0.0–0.1
Psychologist: private practitioner	0.1	0.0–0.1	0.2	0.0–0.8
Social services	0	NA	0.1	0–0.1
Psychiatrist: private practitioner	0	NA	0	
Homeopath	0	NA	0.2	0.1–0.3
Other alternative medicine	0.2	0.1–0.5	0.3	0.1–0.8
Other	0.6	0.3–0.9	0.9	0.6–1.4

NA, not applicable.

which included behavioral, emotional, elimination, and sleep disorders ($k = 0.83$). The assessment of impairment (disability) in 19 areas of functioning (eg, relationship to parents, siblings, peers, and teachers, school functioning) resulting from each group of symptoms was based on the World Health Organization's International Classification of Functioning, Disability, and Health (intraclass correlation coefficient = 0.83).²⁰

Sociodemographic Factors

Parental occupations were coded according to the International Classifications of Occupations.²¹ Professionals and leaders were grouped together as being of "high" SES, whereas farmers/fishermen and skilled and unskilled workers were grouped as "low" SES. Married or cohabitating parents (>6 months) were distinguished from others.

Parental Factors

We constructed a measure of parents' social support modeled after the Social Support Questionnaire.²² Specifically, a composite score of social support with respect to 2 instrumental, 2 informational, and 2 emotional support areas was calculated ($\alpha = 0.86$).

Parents were also asked if 1 or both parents had ever received treatment for mental health problems (yes/no).

Burden and Problem Recognition

Burden placed on the family in 20 areas (eg, problems in relationship with family or social network members, restriction on activities, and decreased feelings of well-being) perceived to be caused by the child's symptoms was recorded using the Child and Adolescent Impact Assessment⁹ (intraclass correlation coefficient = 0.95). Parents also reported whether they perceived their child to be in need of services (yes/no, $k = 0.97$). Additionally, the child's health nurse rated need of professional help for emotional, behavioral, or social problems. The day care person who knew the child best completed the teacher version of the SDQ,¹⁵ which also involves ratings of the extent to which the child is in need of professional help for emotional/behavioral/social problems.

Statistical Analysis

T1 prediction of T2 service use proceeded in 5 steps by using logistic regression: (1) service use and emotional and behavioral disorders were entered,

(2) followed by resulting incapacity, (3) background factors were added (ie, child gender, parental SES, and divorce), (4) parental factors (ie, received treatment of mental health problems, satisfaction with social support), (5) parental perceived burden and parents', day care teachers', and health-nurse's perception of the child as being in need of professional help. Because we had screen-stratified the sample, we conducted weighted analyses using weights proportional to the inverse of the drawing probability. Robust confidence intervals (CIs) were estimated using the Horvitz-Thompson estimator.

RESULTS

Prevalence

The prevalence of service use for symptoms or disorders present during the past 3 months for the total sample doubled from age 4 to age 7 (Table 1), even though prevalence rates for emotional and behavioral disorders remained constant (T1: 11.1%; T2: 12.4%). At age 4 the prevalence of service use among those having at least 1 emotional or behavioral disorder was 10.7% (odds ratio [OR] 3.73, 95% CI 2.43–4.69), whereas at age 7 it increased to 25.2% (OR 4.94, CI 3.46–7.05). Regarding individual stability, 34.4% of T1 service users were also users at T2 (OR 6.31, CI 3.97–10.02). Table 1 shows that at age 4, the primary service providers were health nurses and community agencies. At age 7, family physicians, CAMHS, hospitals, and school counselors also provided services.

Predictors

Presence of emotional (OR 2.54, CI 1.66–3.63) and behavioral (OR 5.64, CI 3.35–9.49) disorders at T1 predicted service use at T2. Table 2 indicates, however, that when previous service use and emotional/behavioral disorder comor-

bidity were taken into consideration (step 1), only behavioral disorders were predictive. Results of step 2 showed that incapacity was, not surprisingly, highly predictive, eliminating the previously significant direct effect of behavioral disorders. Additional general linear model analyses used to investigate relations between disorders and incapacity revealed that both behavioral ($B = 0.99$, CI 0.71–1.27, $P < .001$) and emotional disorders ($B = 0.60$, CI 0.38–0.82, $P < .001$) predicted incapacity when adjusted for service use. Step 3 revealed that low parental SES more than doubled the odds of service use and that boys were more likely to use services, even when the presence of disorders and incapacity were taken into account. Given the same degree of disturbance, then, boys had a greater probability than girls of receiving services. Step 4 indicates that neither parents' own history of help-seeking nor their social support network affected service use. Finally, in step 5, when adding parents' reported burden and caregivers' and parents' perception, respectively, of the child being in need of help, these latter factors proved to be predictive, while the direct effects of all child needs, including impairment, disappeared. However, these contributions to prediction did not affect the earlier-detected effects of (low) SES.

DISCUSSION

The current study of the potential determinants of children's use of mental health services was informed by predictor and process models of service use. Analyzing data from a large community sample of 4-year-olds living in Trondheim and followed up in first grade revealed that behavioral disorders, but not emotional, predicted service use. When incapacity from disorders was considered, it proved predictive at the expense of symptom- and onset/

duration-based diagnoses, such that greater incapacity, but not diagnosis, forecasted more service use. Moreover, when burden to parents and problem recognition by parents and day care teachers were considered, these factors proved predictive; indeed, inclusion of these factors eliminated the earlier-detected direct effect of incapacity. In addition, low parental SES and previous service use predicted more future service use. In sum, the current results accord well with a help-seeking process originating with behavioral symptoms in the child. If such symptoms lead to child impairment, the likelihood of service use increases, but only if the impairment increases the burden placed on parents or makes parents or day care teachers recognize the child to be in need of professional help.

Critically, only 1 in 10 preschoolers with emotional or behavioral disorders received help for mental health problems; however low this figure, it is notably higher than that for US preschoolers, which was reported to be 3.3% of children with a diagnosis in 1 study,⁵ possibly reflecting differences in availability and costs of services, with Norwegian children having comparatively free and easily accessible health service. After school entry, service use increased substantially, to 1 in 4 children with emotional or behavioral disorders; this rate is in accordance with official statistics¹⁷ and the comparably higher rates reported for older children elsewhere.²³ Conceivably, symptoms have endured for a longer time and hopes for spontaneous remission may thus wane by the time the child has started school. The school setting may also put greater demands on the child, making incapacities and resulting burden to parents greater or more evident than in the day care setting, thereby resulting in awareness among day care teachers and parents that the child is in need of help.

TABLE 2 Predictors at Age 4 of Service Use for Psychiatric Diagnoses at Age 7 (First Grade; *n* = 795)

Predictors at T1 (Scale Range)	Mean (SE)/ percentage	Step 1			Step 2			Step 3			Step 4			Step 5		
		OR	95% CI	<i>P</i>	OR	95% CI	<i>P</i>	OR	95% CI	<i>P</i>	OR	95% CI	<i>P</i>	OR	95% CI	<i>P</i>
Service use at age 4	4.2	5.85	3.21–10.68	<.001	4.47	2.43–8.22	<.001	5.41	2.73–10.71	<.001	6.47	3.14–13.35	<.001	4.98	1.77–14.06	.002
Behavioral disorder	4.9	2.64	1.32–5.30	.006	2.00	0.95–4.22	.07	2.06	0.91–4.68	.08	2.28	0.94–5.48	.07	1.52	0.79–3.24	.19
Emotional disorder	9.7	1.72	0.97–3.04	.06	1.40	0.75–2.63	.29	1.34	0.70–2.59	.31	1.16	0.58–2.31	.70	1.56	0.70–3.49	.28
Number of incapacities (0–19)	0.24 (0.02)				1.33	1.15–1.55	<.001	1.29	1.10–1.51	.002	1.23	1.01–1.50	.04	0.98	0.77–1.26	.89
Gender (boy)	49.4							1.70	1.06–2.71	.03	1.68	1.04–2.73	.04	1.56	0.82–2.97	.18
Parents not living together	11.3							1.77	0.90–3.46	.10	1.97	0.92–4.24	.08	1.65	0.57–4.82	.36
Low parental SES	27.5							2.33	1.45–3.75	<.001	2.47	1.51–4.04	<.001	3.04	1.53–6.07	.002
Parental social support (1–7)	4.33 (0.02)										0.75	0.54–1.06	.10	0.92	0.65–1.31	.55
Parents received treatment	21.3										1.41	0.77–2.61	.27	1.38	0.64–2.98	.41
Burden to parents	2.03 (0.02)													1.07	1.01–1.14	.02
Parents: child needs help	5.5													2.67	1.00–7.82	.05
Health nurse: child needs help	1.17 (0.02)													1.13	0.89–1.44	.32
Day care teachers: child needs help (0–6)	0.37 (0.02)													2.12	1.39–3.23	<.001

Child Needs

Previous studies yield conflicting results regarding the relative importance of behavioral and emotional problems for service use.^{11,24} Although emotional disorders predicted more service use here, this association was attributable to the former's comorbidity with behavioral disorders. Given the apparent importance of day care teachers' perception for children's service use, the lack of referrals due to emotional disorders could be seen as a tendency toward nonidentification of emotional problems among Norwegian day care^{16,25} and school²⁶ teachers. This finding is corroborated by UK research showing that teachers are less concerned when a child presents with emotional problems as compared with behavioral problems.²⁷ Behavioral disorders may cause more child impairment and burden to caregivers than emotional disorders⁹; it is also possible that parents and day care teachers simply perceive symptoms of anxiety

and depression as less problematic or pathologic, and/or have higher hopes for their spontaneous remission.

Sociodemographic Factors

Low parental SES was a strong predictor of service use, beyond the effect of higher prevalence of disorders in children of parents with low SES.² These results contrast markedly with those pertaining to older children for whom SES fails to predict service use once child needs are taken into account,²⁸ or for whom service use, at least in the United States, is greater at higher SES levels when severity of problems were adjusted for.²⁹ The possibility of different mechanisms at different ages notwithstanding, differences between US and Norwegian findings may be explained, at least in part, by national differences in the costs of services to families. In any event, the lack of costs involved in Norway does not explain why children with low SES more often were service users. Note that a range of alleged explanatory

variables, such as less social support, greater resulting incapacity from disorders, increased burden, and higher problem recognition did not account for the detected social status difference. Mediating mechanisms that may account for the SES-related findings, such as attitudes toward the use of (public) services in general and mental health services in particular, merit attention in future work.

Burden and Problem Recognition

Although burden and problem recognition by parents predicted service use, findings in line with research on older children,^{9,30} the most striking new result underscored the apparent influence of problem recognition by day care teachers. At T1, Trondheim Early Secure Study children averaged 5538 hours in day care,³¹ and their day care teachers thus had ample time to observe and evaluate them. These teachers should therefore be well positioned to evaluate the extent to which problems

are within the normal range and potential resulting impairments. Their concerns, to the extent that they are shared with parents, may thus carry particular weight instigating help-seeking, especially for behavior problems. Day care and primary school teachers may, however, be less aware of or concerned about emotional problems, possibly because they cause less burden in the day care setting. Additional effort to educate day care teachers about emotional problems in young children may prove beneficial for detecting these problems.

Limitations

Several limitations should be acknowledged when interpreting the present results. First, although the study was prospective, the temporal ordering of predictor variables was by no means unequivocal. For example, it cannot be ruled out that parental burden or needs recognition may affect factors portrayed as originating earlier in the help-seeking process, such as social support or incapacity. Second, diagnoses were set according to interview with only 1 parent, thus identified needs of the child could have been different had the other parent's per-

spective and that of other day care teachers also been taken into account. Third, despite focusing on many possible determinants of service use, those included were not all-encompassing. Other potentially important factors, such as attitudes and previous experiences with services, merit attention in the future. Fourth, any and all professional service use was combined, which may have obscured differential predictors of different types of services.³² Fifth, there was some selective attrition according to study variables, which also predicted service use. Hence, the rate of service use might have been higher in the population than reported here. This potential underestimation is expected to be limited, as study variables explained only a minuscule proportion of the attrition. Moreover, the main focus of the present research was on association between predictors and later service use. Selective attrition is expected to be of lesser importance with respect to the strength of associations, because this would imply interaction effects between predictors of attrition and service use. Finally, findings may not necessarily generalize to countries with different organization

and availability of health and day care services.

CONCLUSIONS

Even though services for Norwegian children's mental health problems are available and free, only 10% of 4-year-olds with emotional or behavioral disorders received professional help, a figure that rose to 25% by first grade. Efforts to increase detection and referrals are therefore warranted. The pathway toward service use among young children may originate with symptoms of mental health disorders, but only if they are behavioral and/or disruptive in nature. Our findings indicate that such behavioral symptoms only increase the probability of service use if impairment in the child results, if this impairment represents a burden to parents, and if the problems are recognized and the child is judged as in need of help by the parent, and, in particular, by day care teachers. Continuing education concerning the nosology, presentation, and consequences of emotional disorders among day care teachers may therefore increase referrals of young children in need of help for mental health problems.

REFERENCES

1. Egger HL, Angold A. Common emotional and behavioral disorders in preschool children: presentation, nosology, and epidemiology. *J Child Psychol Psychiatry*. 2006;47(3-4):313-337
2. Wichstrøm L, Berg-Nielsen TS, Angold A, Egger HL, Solheim E, Sveen TH. Prevalence of psychiatric disorders in preschoolers. *J Child Psychol Psychiatry*. 2012;53(6):695-705
3. Ezepeleta L, de la Osa N, Granero R, Domènech JM, Reich W. The Diagnostic Interview of Children and Adolescents for Parents of Preschool and Young Children: psychometric properties in the general population. *Psychiatry Res*. 2011;190(1):137-144
4. Costello EJ, Angold A, Burns BJ, et al. The Great Smoky Mountains Study of Youth. Goals, design, methods, and the prevalence of DSM-III-R disorders. *Arch Gen Psychiatry*. 1996;53(12):1129-1136
5. Lavigne JV, Lebaillly SA, Hopkins J, Gouze KR, Binns HJ. The prevalence of ADHD, ODD, depression, and anxiety in a community sample of 4-year-olds. *J Clin Child Adolesc Psychol*. 2009;38(3):315-328
6. Lavigne JV, Arend R, Rosenbaum D, et al. Mental health service use among young children receiving pediatric primary care. *J Am Acad Child Adolesc Psychiatry*. 1998;37(11):1175-1183
7. Horwitz SM, Gary LC, Briggs-Gowan MJ, Carter AS. Do needs drive services use in young children? *Pediatrics*. 2003;112(6 pt 1):1373-1378
8. Sourander A, Helstelä L, Ristkari T, Ikäheimo K, Helenius H, Piha J. Child and adolescent mental health service use in Finland. *Soc Psychiatry Psychiatr Epidemiol*. 2001;36(6):294-298
9. Angold A, Messer SC, Stangl D, Farmer EM, Costello EJ, Burns BJ. Perceived parental burden and service use for child and adolescent psychiatric disorders. *Am J Public Health*. 1998;88(1):75-80
10. Pedersen W. Parental relations, mental health, and delinquency in adolescents. *Adolescence*. 1994;29(116):975-990
11. Pavuluri MN, Luk SL, McGee R. Help-seeking for behavior problems by parents of

- preschool children: a community study. *J Am Acad Child Adolesc Psychiatry*. 1996;35(2):215–222
12. Liang B, Goodman L, Tummala-Narra P, Weintraub S. A theoretical framework for understanding help-seeking processes among survivors of intimate partner violence. *Am J Community Psychol*. 2005;36(1–2):71–84
 13. Cauce AM, Domenech-Rodríguez M, Paradise M, et al. Cultural and contextual influences in mental health help seeking: a focus on ethnic minority youth. *J Consult Clin Psychol*. 2002;70(1):44–55
 14. Wichstrøm L, Belsky J, Berg-Nielsen TS. Preschool predictors of childhood anxiety disorders: a prospective community study. *J Child Psychol Psychiatry*. 2013;54(12):1327–1336
 15. Goodman R, Ford T, Simmons H, Gatward R, Meltzer H. Using the Strengths and Difficulties Questionnaire (SDQ) to screen for child psychiatric disorders in a community sample. *Br J Psychiatry*. 2000;177:534–539
 16. Sveen TH, Berg-Nielsen TS, Lydersen S, Wichstrøm L. Detecting psychiatric disorders in preschoolers: screening with the strengths and difficulties questionnaire. *J Am Acad Child Adolesc Psychiatry*. 2013;52(7):728–736
 17. Sitter M. *Behandlingsforløp i det psykiske helsevernet for barn og unge - varighet og omfang av poliklinisk behandling*. Oslo, Norway: Helsedirektoratet; 2011
 18. Egger HL, Erkanli A, Keeler G, Potts E, Walter BK, Angold A. Test-retest reliability of the Preschool Age Psychiatric Assessment (PAPA). *J Am Acad Child Adolesc Psychiatry*. 2006;45(5):538–549
 19. American Psychiatric Association. *Diagnostic and Statistical Manual of Mental Disorders*. 4th ed. Washington, DC: American Psychiatric Association; 1994
 20. World Health Organization. *ICF: International Classification of Functioning, Disability and Health*. Geneva, Switzerland: World Health Organization; 2001
 21. International Labour Office. *International Standard Classification of Occupations: ISCO-88*. Geneva: International Labour Office; 1990
 22. Sarason IG, Levine HM, Basham RB, Sarason BR. Assessing social support—the Social Support Questionnaire. *J Pers Soc Psychol*. 1983;44(1):127–139
 23. Sayal K. Annotation: Pathways to care for children with mental health problems. *J Child Psychol Psychiatry*. 2006;47(7):649–659
 24. Sourander A, Multimäki P, Santalahti P, et al. Mental health service use among 18-year-old adolescent boys: a prospective 10-year follow-up study. *J Am Acad Child Adolesc Psychiatry*. 2004;43(10):1250–1258
 25. Berg-Nielsen TS, Solheim E, Belsky J, Wichstrøm L. Preschoolers' psychosocial problems: in the eyes of the beholder? Adding teacher characteristics as determinants of discrepant parent-teacher reports. *Child Psychiatry Hum Dev*. 2012;43(3):393–413
 26. Stormark KM, Heiervang E, Heimann M, Lundervold A, Gillberg C. Predicting non-response bias from teacher ratings of mental health problems in primary school children. *J Abnorm Child Psychol*. 2008;36(3):411–419
 27. Loades ME, Mastroyannopoulou K. Teachers' recognition of children's mental health problems. *Child Adolesc Ment Health*. 2010;15(3):150–156
 28. Zwaanswijk M, Verhaak PFM, Bensing JM, van der Ende J, Verhulst FC. Help seeking for emotional and behavioural problems in children and adolescents: a review of recent literature. *Eur Child Adolesc Psychiatry*. 2003;12(4):153–161
 29. Amoné-P'Olak K, Ormel J, Oldehinkel AJ, Reijneveld SA, Verhulst FC, Burger H. Socioeconomic position predicts specialty mental health service use independent of clinical severity: the TRAILS study. *J Am Acad Child Adolesc Psychiatry*. 2010;49(7):647–655
 30. Zwaanswijk M, Verhaak PFM, van der Ende J, Bensing JM, Verhulst FC. Change in children's emotional and behavioural problems over a one-year period: associations with parental problem recognition and service use. *Eur Child Adolesc Psychiatry*. 2006;15(3):127–131
 31. Solheim E, Wichstrøm L, Belsky J, Berg-Nielsen TS. Do time in child care and peer group exposure predict poor socioemotional adjustment in Norway? *Child Dev*. 2013;84(5):1701–1715
 32. Reigstad B, Jørgensen K, Sund AM, Wichstrøm L. Adolescents referred to specialty mental health care from local services and adolescents who remain in local treatment: what differs? *Soc Psychiatry Psychiatr Epidemiol*. 2006;41(4):323–331

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