

MENTAL HEALTH DIAGNOSES AND CHILD PROTECTION SYSTEM INVOLVEMENT AMONG MEDICAID-INSURED CHILDREN

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Harnessing the scientific potential of linked, administrative data to inform children's programs and policies.



BACKGROUND AND PURPOSE

Research has consistently documented a relationship between childhood maltreatment and mental health (MH) disorders.

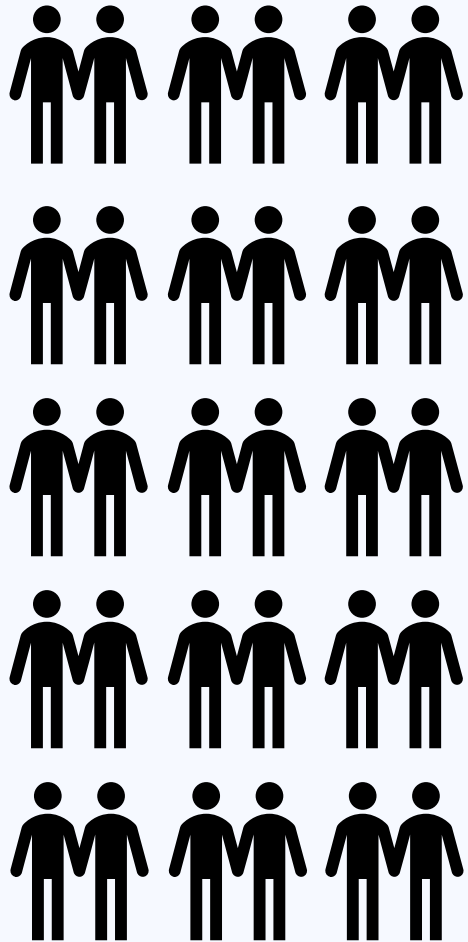
These findings, however, have emerged largely through studies of children placed in out-of-home foster care, a small subset of all maltreated children.

In the current study, we linked population-based Medicaid eligibility and claim records to longitudinal child protection records from California.

Using these data, we assessed both the prevalence of MH diagnoses among Medicaid-insured children and the share of those children who had a history of child protection involvement.

QUESTIONS [?]

1. How many Medicaid-insured children have **mental health diagnoses** in California?
2. What share of those children have **past or current involvement with the child protection system** for allegations of abuse or neglect?

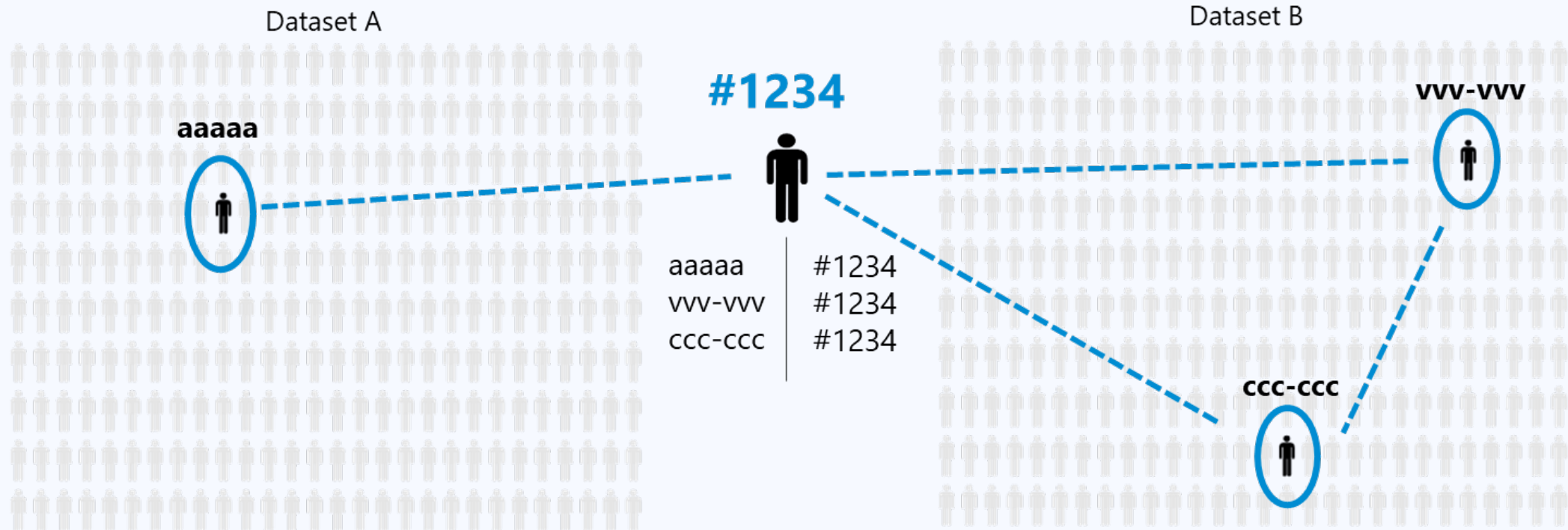


DATA

1. Records for all children enrolled in CA's Medicaid program for at least 1 month between 2014-2015 and who had at least one claim during that period ← **N=3,352,886**
[study population]
2. Administrative child protection records (referral, investigation, disposition, foster care placement) from 1998 through 2015 ← [**exposure**]

LINKAGE ALGORITHM

Probabilistic de-duplication and cross-program linkage of records using an algorithm trained / customized for California data
(*machine learning*)



ANALYSIS



DEPENDENT VARIABLE:

1. MH diagnosis (0/1)
2. Nature of MH diagnosis (see next slide)



INDEPENDENT VARIABLE:

1. Past child protection involvement (0/1)
2. Level of child protection involvement
 1. No report
 2. Reported, but not substantiated
 3. Substantiated, but never placed in foster care
 4. Substantiated and placed in foster care



COVARIATES:

1. Age (0-5, 6-10, 11-15, 16-17)
2. Sex (female, male)
3. Race/Ethnicity (White, Hispanic, Black, Asian/PI, AK/AI, Missing / Not Reported)

Patterns of Early Mental Health Diagnosis and Medication Treatment in a Medicaid-Insured Birth Cohort

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eTable 1. Psychiatric Diagnoses in the Birth Cohort

Diagnostic Group	ICD-9-CM codes
ADHD	314
Disruptive disorders	312.0-312.4, 312.81, 312.82, 312.89, 312.9, 313.81
Learning disorders	307.0, 307.9, 315.0-315.2, 315.31, 315.32, 315.39, 315.9
Adjustment disorders	308.0-308.2, 308.4, 308.9, 309.0-309.4, 309.82, 309.83, 309.89, 309.9
Anxiety disorders	293.84, 300.0, 300.2, 300.3, 308.3, 309.21, 309.81, 313.0, 313.2, 313.89
Depression	293.83, 296.2, 296.3, 296.9, 298.0, 300.4, 311
Autism Spectrum Disorder	299, 299.8
Other psychiatric disorders	290-319 (includes only the codes not listed above)
Schizophrenia/other psychotic disorders	295, 297-298
Bipolar Disorder	296.0, 296.1, 296.4 – 296.8, 301.13
Intellectual disability	317 – 319

Table 1. Medicaid Study Population (Aged 0–17 in 2014–2015) by Reported Maltreatment, Demographic Characteristics, and MH Diagnosis

	Medicaid Population (n=3,352,886)		No MH Diagnosis (n=2,882,373)		MH Diagnosis (n=470,513)		Chi-Square Test
	n	%	n	%	n	%	p-value
Reported Maltreatment	903,019	26.9%	665,937	23.1%	237,082	50.4%	<.001
Age (years)							
0-5	1,220,376	36.4%	1,129,591	39.2%	90,785	19.3%	<.001
6-10	1,034,283	30.8%	885,228	30.7%	149,055	31.7%	
11-15	799,523	23.8%	641,314	22.2%	158,209	33.6%	
16-17	298,704	8.9%	226,240	7.8%	72,464	15.4%	
Sex							
Female	1,618,227	48.3%	1,431,355	49.7%	186,872	39.7%	<.001
Male	1,734,659	51.7%	1,451,018	50.3%	283,641	60.3%	
Race/Ethnicity							
Hispanic	2,085,571	62.2%	1,823,502	63.3%	262,069	55.7%	<.001
White	498,528	14.9%	395,922	13.7%	102,606	21.8%	
Asian/PI	379,829	11.3%	343,780	11.9%	36,049	7.7%	
Black	226,128	6.7%	180,649	6.3%	45,479	9.7%	
AN/AI	11,411	0.3%	8,861	0.3%	2,550	0.5%	
Missing / Other	151,419	4.5%	129,659	4.5%	21,760	4.6%	

Note. Chi-square tests used to examine differences in the demographic characteristics and CPS involvement of children with and without an MH diagnosis. MH = mental health; PI = Pacific Islander; AN/AI = Alaska Native or American Indian. Children with missing gender (< .05%) were excluded from the analysis.

Figure 1. Medicaid Study Population (Aged 0–17 in 2014–2015) by MH Diagnostic Group and Percentage of Children Reported for Alleged Abuse or Neglect

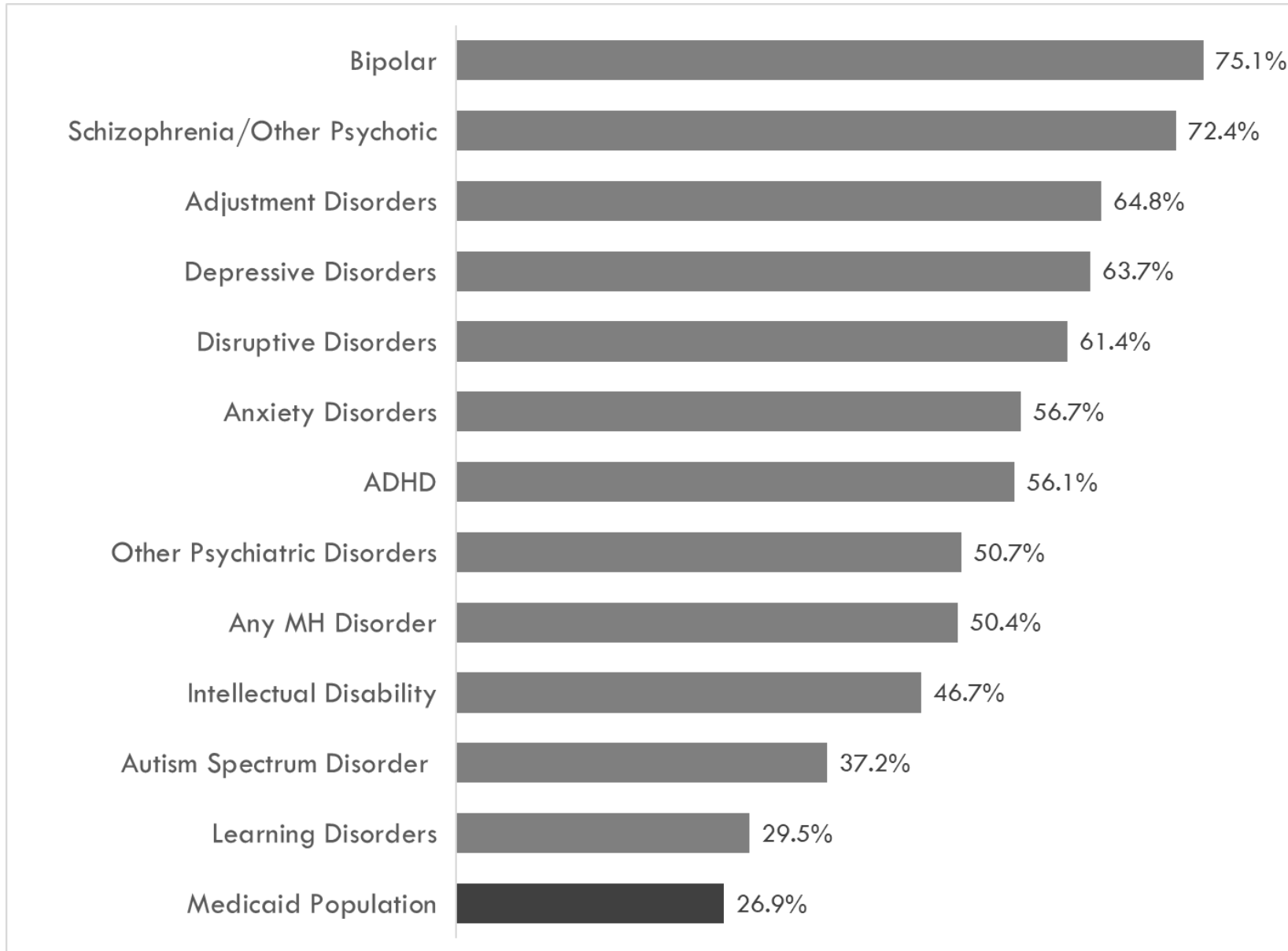


Table 2. Medicaid Study Population (Aged 0–17 in 2014–2015) by Highest Level of CPS Involvement and MH Diagnostic Group

	Study Population <i>n</i>	Never Reported %	Reported (no substantiation) %	Substantiated as Victims (no placement) %	(foster care) %
Medicaid Population 0-17 years	3,352,886	73.1%	17.7%	5.4%	3.9%
MH Diagnosis	470,513	49.6%	27.0%	10.4%	13.0%
ADHD	117,405	43.9%	32.1%	11.1%	12.9%
Disruptive Disorders	87,718	38.6%	32.1%	12.9%	16.3%
Learning Disorders	71,609	70.5%	18.5%	5.1%	5.9%
Adjustment Disorders	88,502	35.2%	25.3%	12.3%	27.2%
Anxiety Disorders	99,602	43.3%	27.6%	12.1%	17.0%
Depressive Disorders	91,150	36.3%	34.0%	14.4%	15.3%
Autism Spectrum Disorder	46,086	62.8%	25.7%	6.6%	5.0%
Other Psychiatric Disorders	93,704	49.3%	25.8%	9.7%	15.2%
Schizophrenia/Other Psychotic	10,684	27.6%	35.6%	15.2%	21.6%
Bipolar	8,726	24.9%	35.9%	15.5%	23.7%
Intellectual Disability	7,069	53.3%	28.9%	8.5%	9.3%

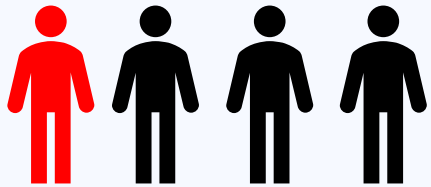
Note. Children in the study population were assigned to mutually exclusive groups based on their highest level of CPS involvement through 2015. MH = mental health; CPS = child protection system.

Table 3. Adjusted Likelihood of an MH Diagnosis Based on Level of CPS Involvement

	Reported, no substantiation (vs. No CPS Involvement)		Substantiated, no placement (vs. No CPS Involvement)		Placed in Foster Care (vs. No CPS Involvement)	
	Adj. RR	(95% CI)	Adj. RR	95% CI	Adj. RR	95% CI
MH Diagnosis	1.87	1.86 , 1.89	2.28	2.26 , 2.30	3.98	3.95 , 4.01
ADHD	2.09	2.06 , 2.12	2.25	2.21 , 2.29	3.56	3.50 , 3.62
Disruptive Disorders	2.69	2.64 , 2.73	3.44	3.37 , 3.51	6.00	5.89 , 6.12
Learning Disorders	1.33	1.30 , 1.35	1.27	1.23 , 1.31	1.81	1.75 , 1.87
Adjustment Disorders	2.40	2.36 , 2.45	3.70	3.62 , 3.78	11.46	11.26 , 11.66
Anxiety Disorders	1.97	1.94 , 2.00	2.66	2.61 , 2.71	5.38	5.28 , 5.47
Depressive Disorders	2.50	2.47 , 2.54	3.14	3.08 , 3.20	5.00	4.91 , 5.10
Autism Spectrum Disorder	1.48	1.45 , 1.52	1.22	1.18 , 1.27	1.24	1.18 , 1.29
Other Psychiatric Disorders	1.93	1.90 , 1.96	2.30	2.25 , 2.35	4.87	4.78 , 4.97
Schizophrenia/Other Psychotic	3.34	3.18 , 3.51	4.19	3.94 , 4.45	8.63	8.16 , 9.13
Bipolar	3.52	3.33 , 3.73	4.39	4.09 , 4.70	9.28	8.71 , 9.89
Intellectual Disability	1.79	1.69 , 1.89	1.68	1.54 , 1.83	2.63	2.42 , 2.86

Note. Individual models were run for each MH diagnostic group adjusted for child age, race and ethnicity, and gender. Children were classified based on their highest level of CPS involvement through 2015. MH = mental health; CPS = child protection system; Adj. = adjusted; CI = confidence interval.

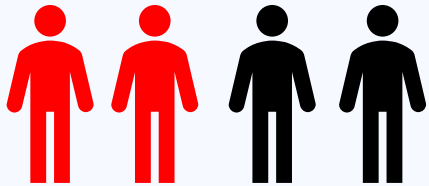
KEY FINDING #1



26.9%

Reported for
maltreatment

Medicaid children overall

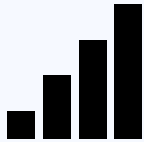


50.4%

Reported for
maltreatment

Medicaid children with a Mental Health Diagnosis

KEY FINDING #2



1. Across every MH diagnostic group, the share of children with a history of CPS involvement was elevated relative to children on Medicaid overall
2. Differences by MH diagnostic group emerged. Limitations of data prevent causal conclusions, but the adjusted relative risk seems to point to “adjustment disorder diagnoses” as a diagnosis used to receive services for children placed in foster care?

KEY FINDING #3



- Mental health diagnoses are common among children reported for maltreatment, regardless of whether a child has been placed in out-of-home placement.



- Most children (74.1%) who had a mental health diagnosis AND a report of maltreatment had never spent time in foster care.

LIMITATIONS

TIMING	MEASUREMENT	GENERALIZABILITY
could not document timing of CPS relative to MH diagnosis	imperfect measurement of child abuse and neglect	CA records
likelihood of diagnosis may be affected by level of CPS involvement	MH diagnosis vs. MH need	2014-2015

Practice and policy implications?



Significant overlap between MH diagnosis and child protection involvement.

But most children reported for maltreatment will never be placed in foster care.

These data underscore the importance of ensuring that children who remain at home following allegations of maltreatment receive the proper array and coordination of mental health and other services

ACKNOWLEDGEMENTS

This study was made possible thanks to the data infrastructure support provided by First 5 LA, the Conrad H. Hilton Foundation, and the Heising-Simons Foundation.

Although the findings reported and conclusions drawn from these data are solely those of the authors and should not be considered to reflect those of any state agency, we wish to acknowledge the valuable assistance of the **California Department of Health Care Services [THANK YOU]** and the **California Department of Social Services [THANK YOU]** in data preparation and description. Their ongoing commitment to evidence-driven program and policy development is truly a model for public transparency and accountability.

We also wish to acknowledge collaborating colleagues at the USC Children's Data Network and the UC Berkeley California Child Welfare Indicators Project.



Questions?

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SUPPLEMENTAL TABLES

Supplemental Table A-1. Medicaid Study Population (Aged 0–17 in 2014–2015) by Reported Maltreatment, Demographic Characteristics, and MH Diagnosis Group

	ADHD (n=117,405)		Disruptive Disorders (n=87,718)		Learning Disorders (n=71,609)		Adjustment Disorders (n=88,502)		Anxiety Disorders (n=99,602)		Depressive Disorders (n=91,150)	
	<i>n</i>	% (col)	<i>n</i>	% (col)	<i>n</i>	% (col)	<i>n</i>	% (col)	<i>n</i>	% (col)	<i>n</i>	% (col)
Reported Maltreatment	65,889	56.1%	53,855	61.4%	21,111	29.5%	57,326	64.8%	56,476	56.7%	58,065	63.7%
Age (years)												
0-5	4,654	4.0%	11,123	12.7%	40,319	56.3%	11,847	13.4%	8,729	8.8%	1,254	1.4%
6-10	48,101	41.0%	33,107	37.7%	18,358	25.6%	32,687	36.9%	31,508	31.6%	14,459	15.9%
11-15	50,616	43.1%	30,514	34.8%	10,304	14.4%	31,636	35.7%	38,967	39.1%	43,461	47.7%
16-17	14,034	12.0%	12,974	14.8%	2,628	3.7%	12,332	13.9%	20,398	20.5%	31,976	35.1%
Sex												
Female	28,762	24.5%	26,993	30.8%	22,680	31.7%	43,689	49.4%	51,094	51.3%	49,669	54.5%
Male	88,643	75.5%	60,725	69.2%	48,929	68.3%	44,813	50.6%	48,508	48.7%	41,481	45.5%
Race/Ethnicity												
Hispanic	55,928	47.6%	49,385	56.3%	42,055	58.7%	48,226	54.5%	56,233	56.5%	52,564	57.7%
White	33,636	28.6%	19,178	21.9%	12,220	17.1%	22,192	25.1%	24,110	24.2%	20,443	22.4%
Asian/PI	7,070	6.0%	4,562	5.2%	7,514	10.5%	5,929	6.7%	6,668	6.7%	5,258	5.8%
Black	14,904	12.7%	11,190	12.8%	4,884	6.8%	9,268	10.5%	8,768	8.8%	9,542	10.5%
AN/AI	669	0.6%	510	0.6%	250	0.3%	803	0.9%	698	0.7%	575	0.6%
Missing	5,198	4.4%	2,893	3.3%	4,686	6.5%	2,084	2.4%	3,125	3.1%	2,768	3.0%

Supplemental Table A-2. Medicaid Study Population (Aged 0–17 in 2014–2015) by Reported Maltreatment, Demographic Characteristics, and MH Diagnosis Group

	Autism Spectrum Disorder (n=46,086)		Other Psychiatric Disorders (n=93,704)		Schizophrenia / Other Psychotic (n=10,684)		Bipolar Disorder (n=8,726)		Intellectual Disability (n=7,069)	
	<i>n</i>	% (col)	<i>n</i>	% (col)	<i>n</i>	% (col)	<i>n</i>	% (col)	<i>n</i>	% (col)
Reported Maltreatment	17,161	37.2%	47,542	50.7%	7,731	72.4%	6,549	75.1%	3,303	46.7%
Age (years)										
0-5	10,049	21.8%	25,620	27.3%	202	1.9%	70	0.8%	834	11.8%
6-10	17,811	38.6%	23,087	24.6%	1,341	12.6%	1,391	15.9%	2,515	35.6%
11-15	14,038	30.5%	25,416	27.1%	4,804	45.0%	4,061	46.5%	2,635	37.3%
16-17	4,188	9.1%	19,581	20.9%	4,337	40.6%	3,204	36.7%	1,085	15.3%
Sex										
Female	8,955	19.4%	40,008	42.7%	5,403	50.6%	3,843	44.0%	2,848	40.3%
Male	37,131	80.6%	53,696	57.3%	5,281	49.4%	4,883	56.0%	4,221	59.7%
Race/Ethnicity										
Hispanic	19,438	42.2%	50,345	53.7%	5,241	49.1%	3,291	37.7%	3,595	50.9%
White	11,758	25.5%	19,958	21.3%	2,622	24.5%	3,123	35.8%	1,359	19.2%
Asian/PI	6,371	13.8%	7,493	8.0%	643	6.0%	368	4.2%	597	8.4%
Black	3,284	7.1%	9,610	10.3%	1,608	15.1%	1,372	15.7%	579	8.2%
AN/AI	176	0.4%	462	0.5%	69	0.6%	51	0.6%	24	0.3%
Missing	5,059	11.0%	5,836	6.2%	501	4.7%	521	6.0%	915	12.9%

Supplemental Table A-3. Medicaid Study Population (Aged 0–17 in 2014–2015) by the Prevalence of MH Diagnoses Group using Under 5 Age Groups

	Total	0-2 years		3-4 years		5-17 years	
	<i>N</i>	<i>n</i>	%	<i>n</i>	%	<i>n</i>	%
Medi-Cal Eligible Child Population	3,352,886	626,197	100.00%	398,193	100.00%	2,328,496	100.00%
MH Diagnosis	470,513	28,757	4.59%	40,394	10.14%	401,362	17.24%
ADHD	117,405	332	0.05%	1,811	0.45%	115,262	4.95%
Disruptive Disorders	87,718	1,535	0.25%	5,333	1.34%	80,850	3.47%
Learning Disorders	71,609	15,078	2.41%	19,268	4.84%	37,263	1.60%
Adjustment Disorders	88,502	2,492	0.40%	5,183	1.30%	80,827	3.47%
Anxiety Disorders	99,602	1,394	0.22%	3,988	1.00%	9,422	0.40%
Depressive Disorders	91,150	172	0.03%	482	0.12%	90,496	3.89%
Autism Spectrum Disorder	46,086	1,093	0.17%	5,406	1.36%	39,587	1.70%
Other Psychiatric Disorders	93,704	10,895	1.74%	9,837	2.47%	72,972	3.13%
Schizophrenia/Other Psychotic Disorder	10,684	60	0.01%	68	0.02%	10,556	0.45%
Bipolar Disorder	8,726	14	0.00%	19	0.00%	8,693	0.37%
Intellectual Disability	7,069	86	0.01%	399	0.10%	6,584	0.28%

Supplemental Table A-4. Medicaid Study Population (Aged 0–17 in 2014–2015) by the Age Distribution of Children with a MH Diagnosis

	Total	0-2 years		3-4 years		5-17 years	
	<i>N</i>	<i>n</i>	% (row)	<i>n</i>	% (row)	<i>n</i>	% (row)
Medi-Cal Eligible Child Population	3,352,886	626,197	18.68%	398,193	11.88%	2,328,496	69.45%
MH Diagnosis	470,513	28,757	6.11%	40,394	8.59%	401,362	85.30%
ADHD	117,405	332	0.28%	1,811	1.54%	115,262	98.17%
Disruptive Disorders	87,718	1,535	1.75%	5,333	6.08%	80,850	92.17%
Learning Disorders	71,609	15,078	21.06%	19,268	26.91%	37,263	52.04%
Adjustment Disorders	88,502	2,492	2.82%	5,183	5.86%	80,827	91.33%
Anxiety Disorders	99,602	1,394	1.40%	3,988	4.00%	9,422	9.46%
Depressive Disorders	91,150	172	0.19%	482	0.53%	90,496	99.28%
Autism Spectrum Disorder	46,086	1,093	2.37%	5,406	11.73%	39,587	85.90%
Other Psychiatric Disorders	93,704	10,895	11.63%	9,837	10.50%	72,972	77.88%
Schizophrenia/Other Psychotic Disorder	10,684	60	0.56%	68	0.64%	10,556	98.80%
Bipolar Disorder	8,726	14	0.16%	19	0.22%	8,693	99.62%
Intellectual Disability	7,069	86	1.22%	399	5.64%	6,584	93.14%