

## Supplementary Online Content

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**eReferences.**

This supplementary material has been provided by the authors to give readers additional information about their work.

**eTable 1.** List of Swedish International Classification of Diseases (ICD) Codes to Collect Records of Primary Antibody Immunodeficiencies From the National Patient Register

<b>Diagnoses</b>	<b>ICD-8 codes</b>	<b>ICD-9 codes</b>	<b>ICD-10 codes</b>	<b>PID n=8 378 (%)<sup>b</sup></b>
Hypogammaglobulinaemia	275,10 <sup>a</sup>			744 (8.88)
<u>Primary deficiencies of humoral immunity</u> Agammaglobulinemia Hypogammaglobulinemia Common variable immunodeficiency Selective deficiency of immunoglobulin A Selective deficiency of immunoglobulin G		279J <sup>a</sup>		1 469 (17.53)
Hereditary hypogammaglobulinemia			D80.0	2 244 (26.78)
Nonfamilial hypogammaglobulinemia			D80.1	3 519 (42.00)
Selective deficiency of immunoglobulin A [IgA]			D80.2	4 050 (48.34)
Selective deficiency of immunoglobulin G [IgG] subclasses			D80.3	4 786 (57.13)
Selective deficiency of immunoglobulin M [IgM]			D80.4	2 096 (25.02)
Immunodeficiency with increased immunoglobulin M [IgM]			D80.5	57 (0.68)
Common variable immunodeficiency with predominant abnormalities of B-cell numbers and function			D83.0	2 317 (27.66)
Common variable immunodeficiency with predominant immunoregulatory T-cell disorders			D83.1	139 (1.66)
Common variable immunodeficiency with autoantibodies to B- or T-cells			D83.2	2 037 (24.31)
Other common variable immunodeficiency			D83.8	2 130 (25.42)
Common variable immunodeficiency, unspecified			D83.9	2 405 (28.71)

<sup>a</sup> In ICD-8 and 9 there was only one diagnostic code representing primary deficiencies of humoral immunity.

<sup>b</sup> Individual ICD-codes for subtypes of primary immunodeficiency (PID) could only be ascertained in ICD-10. The sum of individuals with a specific PID diagnosis may exceed the total number of PID individuals since patients could have more than one code in the register.

**eTable 2.** List of Swedish International Classification of Diseases (ICD) Codes to Collect records of Psychiatric Disorders From the National Patient Register

<b>Diagnoses</b>	<b>ICD-8 codes</b>	<b>ICD-9 codes</b>	<b>ICD-10 codes</b>	<b>Age constrains</b>
Autism spectrum disorders	-	299A	F84.0, F84.1, F84.8, F84.9	If recorded at age $\geq 1$ year
Attention-deficit/hyperactivity disorder  Diagnosis defined through both ICD-code or prescription of ADHD drugs <sup>a</sup> as recorded in the Prescribed Drug Register. The validity of this definition has been previously described. <sup>1</sup>	-	314W, 314X	F90  Prescribed Drug Register codes: <sup>a</sup> N06BA01, N06BA02, N06BA04, N06BA09, N06BA12	If recorded at age $\geq 3$ years
Tourette's and chronic tic disorders	306.2 following the algorithm described elsewhere. <sup>2</sup>	307C following the algorithm described elsewhere. <sup>2</sup>	F95.1, F95.2 following the algorithm described elsewhere. <sup>2</sup>	If recorded at age $\geq 3$ years
Obsessive-compulsive disorder	300.3	300D	F42	If recorded at age 6 years or above
Eating disorders	-	307B, 307F	F50.0/.1/.2/.3/.8/.9	If recorded at age $\geq 8$ years
Schizophrenia and other psychotic disorders	291, 295, 296.99, 297, 298, 299	291, 292, 295, 296X, 297, 298, 299 (except for 299A)	F10-F19 subsection .5, F20, F21, F22, F23, F24, F25, F28, F29, F32.3	If recorded at age $\geq 10$ years

Bipolar disorders	296, except 296.2 and 296.99	296, except 296B and 296X	F30, F31	If recorded at age $\geq$ 10 years
Anxiety and stress-related disorders	3000, 3002, 307, 3084	300A, 300C, 308,309	F40.0, F40.1, F41.1, F43	If recorded at age $\geq$ 6 years
Major depression disorder and other mood disorders	296.2, 300.4	296B, 300E, 311	F32 (except for F32.3), F33, F34, F38, F39	If recorded at age $\geq$ 10 years
Substance use disorders	303, 304	303, 304, 305A, 305X	F10-F19 (except subsection .5)	If recorded at age $\geq$ 10 years

<sup>a</sup> In the Prescribed Drug Register, drug classes are defined following the Anatomical Therapeutic Chemical (ATC) classification system codes.

**eTable 3.** List of Swedish International Classification of Diseases (ICD) Codes to Define Suicidal Behavior From the National Patient Register and the Cause of Death Register<sup>b</sup>

Diagnoses <sup>c</sup>	ICD codes <sup>a</sup>
Suicide and self-inflicted injury	E950-E959 (ICD-8 and ICD-9), if recorded at age $\geq 10$ years
Intentional self-harm	X60-X84 (ICD-10), if recorded at age $\geq 10$ years
Injury undetermined whether accidental or purposely inflicted	E980-E989 (ICD-8 and ICD-9), if recorded at age $\geq 10$ years
Events of undetermined intent	Y10-Y34 (ICD-10), if recorded at age $\geq 10$ years

<sup>a</sup> Diagnoses of suicide attempts were retrieved from the National Patient Register and were coded according to the Swedish version of ICD-codes in its 8<sup>th</sup>, 9<sup>th</sup>, or 10<sup>th</sup> revision.

<sup>b</sup> Diagnoses of death by suicide were retrieved from the Cause of Death Register using the same codes as for suicide attempts and were coded according to the International version of ICD-codes in its 8<sup>th</sup>, 9<sup>th</sup>, or 10<sup>th</sup> revision.

<sup>c</sup> Consistent with previous suicide research, both certain and undetermined causes were included in the definition of suicidal behavior.<sup>3,4</sup>

**eTable 4.** List of Swedish International Classification of Diseases (ICD) Codes to Collect Records of Autoimmune Diseases From the National Patient Register

Diagnoses	ICD-8 codes	ICD-9 codes	ICD-10 codes
Acute disseminated encephalomyelitis	-	-	G04
Alopecia areata	704.00	704.A	L63
Anti-NMDA receptor encephalitis	-	-	G13.1
Antiphospholipid syndrome	-	-	D68.61
Autoimmune polyglandular syndrome	258.10	258.B	E31.0
Behçet's disease	136.07	136.B	M35.2
Bullous pemphigoid	694.02	694.F	L12.0
Celiac disease	269.10	579.A	K90.0
Churg-Strauss syndrome	-	-	M30.1
Crohn's disease	563.00	555	K50
Dermatomyositis	716.00	710.D	M33.90
Graves' disease	242.00	242.A	E05.0
Guillain-Barré syndrome	354.01	357.A	G61.0
Hashimoto's thyroiditis	245.03	245.C	E06.3
Henoch-Schonlein purpura	287.00	287.A	D69.0
Idiopathic thrombocytopenic purpura	287.10 / 446.38	287.D	D69.3
IgA nephropathy	580 /582	580 /582	N00/N01/N03/N05
Kawasaki	-	446.1	M30.3
Microscopic polyangiitis	-	-	M31.7
Mixed connective tissue disease	734.91	710.W	M35.1
Multiple sclerosis	340	340	G35
Myasthenia gravis	733.00	358.A	G70.0
Pemphigus vulgaris	694	694.E	L10.0
Polymyalgia rheumatica	-	725	M35.3
Polyarteritis nodosa	446.09	446.0	M30.0
Primary biliary cirrhosis	571.90	571.F	K74.3
Psoriasis vulgaris	696.10 / 696.19-23	696	L40
Rheumatic fever	390/391	390/391	I00/I01
Rheumatic fever with chorea	392	392	I02
Rheumatoid arthritis	712.00 / 712.10/ 712.19 / 712.39 / 712.59	714.A	M06
Scarlet fever	034.1	034.1	A38.9
Scleroderma (systemic sclerosis)	734.0 / 734.01 / 734.09	710.B	M34
Sjögren's syndrome	734.90	710.C	M35.0
Systemic Lupus Erythematosus	734.10	710.A	M32
Temporal arteritis	446.30	446.F	M31.5
Thrombotic thrombocytopenic purpura	446.40	446.G	M31.1
Type 1 diabetes mellitus	-	-	E10.9
Ulcerative colitis	563.10	556	K51
Vitiligo	709.05	709.A	L80
Wegener's granulomatosis	446.20	446.E	M31.3

**eTable 5. Risk of Psychiatric Disorders and Suicidal Behavior in Offspring of Fathers With Primary Immunodeficiencies**

	Offspring of fathers with PID n=2 594	Offspring of fathers without PID n= 4 286 899	IRR (95% CI) Model 1	IRR (95% CI) Model 2	IRR (95% CI) Model 3
Any psychiatric disorder	363 (13.99)	545 224 (12.72)	1.10 (1.00-1.21)	1.05 (0.96-1.16)	1.03 (0.94-1.14)
Obsessive-compulsive disorder	14 (0.54)	24 136 (0.56)	0.95 (0.57-1.61)	0.91 (0.54-1.54)	0.90 (0.53-1.52)
Attention-deficit/hyperactivity disorder	76 (2.93)	106 306 (2.48)	1.35 (1.08-1.68)	1.23 (0.99-1.53)	1.20 (0.96-1.49)
Autism spectrum disorders	26 (1.00)	39 788 (0.93)	1.21 (0.82-1.77)	1.12 (0.76-1.64)	1.09 (0.74-1.60)
Schizophrenia and other psychotic disorders	27 (1.04)	36 345 (0.85)	1.12 (0.77-1.62)	1.07 (0.73-1.55)	1.07 (0.73-1.55)
Bipolar disorders	32 (1.23)	31 385 (0.73)	1.58 (1.12-2.23)	1.51 (1.07-2.13)	1.50 (1.06-2.11)
Major depression disorder and other mood disorders	135 (5.20)	203 516 (4.75)	1.05 (0.90-1.24)	1.01 (0.86-1.19)	1.00 (0.85-1.17)
Anxiety and stress-related disorders	179 (6.90)	257 885 (6.02)	1.11 (0.97-1.28)	1.07 (0.93-1.23)	1.05 (0.91-1.21)
Eating disorders	26 (1.00)	32 707 (0.76)	1.36 (0.93-1.99)	1.33 (0.91-1.94)	1.31 (0.90-1.92)
Substance use disorders	97 (3.74)	163 887 (3.82)	0.96 (0.79-1.16)	0.91 (0.75-1.10)	0.90 (0.74-1.09)
Any suicidal behavior	97 (3.74)	132 867 (3.10)	1.17 (0.96-1.42)	1.12 (0.92-1.36)	1.10 (0.91-1.34)
Suicide attempt	93 (3.59)	125 533 (2.93)	1.19 (0.97-1.45)	1.14 (0.93-1.39)	1.12 (0.92-1.37)
Death by suicide	8 (0.31)	10 573 (0.25)	1.12 (0.56-2.23)	1.07 (0.53-2.13)	1.07 (0.53-2.13)

Note: Significant IRRs are marked in bold.

Tourette syndrome/ chronic tic disorders are not reported separately due to small numbers.

Model 1: Adjusted by parental birth year and offspring sex and birth year.

Model 2: Adjusted by parental birth year and offspring sex and birth year, parental any psychiatric disorders or suicidal behavior.

Model 3: Adjusted by parental birth year and offspring sex and birth year, parental any psychiatric disorders or suicidal behavior, and any autoimmune diseases in parents.

Total numbers and percentage of the specific outcomes may not sum up to that of the combined outcomes as the study participants may have more than one specific outcome.

Abbreviations: PID, primary immunodeficiencies; IRR, incidence rate ratio; CI, confidence intervals.



**eTable 6.** Risk of Psychiatric Disorders and Suicidal Behavior in Offspring of Mothers With Primary Immunodeficiencies in a Sub-cohort of Individuals Born in 1973 or Later

	Offspring of mothers with PID n=2 835	Offspring of mothers without PID n= 3 135 778	IRR (95% CI) Model 1	IRR (95% CI) Model 2	IRR (95% CI) Model 3
Any psychiatric disorder	495 (17.46)	403 783 (12.88)	1.33(1.23-1.44)	1.18(1.09-1.28)	1.16(1.07-1.26)
Obsessive-compulsive disorder	26 (0.92)	19 772 (0.63)	1.38(0.94-2.02)	1.23(0.84-1.81)	1.22(0.83-1.78)
Attention-deficit/hyperactivity disorder	119 (4.20)	94 843 (3.02)	1.57(1.31-1.86)	1.30(1.10-1.55)	1.26(1.06-1.50)
Autism spectrum disorders	55 (1.94)	36 581 (1.17)	1.82(1.40-2.36)	1.58(1.22-2.05)	1.54(1.18-2.00)
Schizophrenia and other psychotic disorders	25 (0.88)	19 456 (0.62)	1.25(0.84-1.84)	1.05(0.71-1.56)	1.05(0.71-1.56)
Bipolar disorders	35 (1.23)	20 079 (0.64)	1.74(1.25-2.42)	1.47(1.06-2.05)	1.46(1.05-2.02)
Major depression disorder and other mood disorders	183 (6.46)	142 541 (4.55)	1.32(1.15-1.52)	1.16(1.01-1.33)	1.14(0.99-1.31)
Anxiety and stress-related disorders	235 (8.29)	183 543 (5.85)	1.33(1.18-1.50)	1.17(1.03-1.31)	1.14(1.01-1.29)
Eating disorders	34 (1.20)	28 564 (0.91)	1.30(0.93-1.81)	1.23(0.88-1.71)	1.22(0.87-1.70)
Substance use disorders	148 (5.22)	114 281 (3.64)	1.36(1.17-1.60)	1.17(1.00-1.37)	1.16(0.99-1.35)
Any suicidal behavior	112 (3.95)	88 737 (2.83)	1.32(1.11-1.59)	1.14(0.95-1.37)	1.13(0.94-1.35)
Suicide attempt	108 (3.81)	85 646 (2.73)	1.33(1.10-1.60)	1.15(0.96-1.38)	1.13(0.94-1.36)
Death by suicide	5 (0.18)	4 459 (0.14)	1.06(0.44-2.55)	0.86(0.36-2.05)	0.86(0.36-2.06)

Note: Significant IRRs are marked in bold.

Tourette syndrome/ chronic tic disorders are not reported separately due to small numbers.

Model 1: Adjusted by parental birth year and offspring sex and birth year.

Model 2: Adjusted by parental birth year and offspring sex and birth year, parental any psychiatric disorders or suicidal behavior.

Model 3: Adjusted by parental birth year and offspring sex and birth year, parental any psychiatric disorders or suicidal behavior, and any autoimmune diseases in parents.

Total numbers and percentage of the specific outcomes may not sum up to that of the combined outcomes as the study participants may have more than one specific outcome.

Abbreviations: PID, primary immunodeficiencies; IRR, incidence rate ratio; CI, confidence intervals.

**eTable 7.** Risk of Psychiatric Disorders and Suicidal Behavior in Offspring of Fathers With Primary Immunodeficiencies in a Sub-cohort of Individuals Born in 1973 or Later

	Offspring of fathers with PID n=1 742	Offspring of fathers without PID n= 3 135 778	IRR (95% CI) Model 1	IRR (95% CI) Model 2	IRR (95% CI) Model 3
Any psychiatric disorder	261 (14.98)	403 783 (12.88)	1.15(1.03-1.29)	1.08(0.97-1.21)	1.06(0.95-1.19)
Attention-deficit/hyperactivity disorder	69 (3.96)	94 843 (3.02)	1.44(1.14-1.81)	1.29(1.03-1.63)	1.26(1.00-1.58)
Autism spectrum disorders	22 (1.26)	36 581 (1.17)	1.15(0.76-1.74)	1.05(0.70-1.60)	1.03(0.68-1.56)
Schizophrenia and other psychotic disorders	17 (0.98)	19 456 (0.62)	1.40(0.87-2.24)	1.31(0.81-2.09)	1.31(0.81-2.09)
Bipolar disorders	23 (1.32)	20 079 (0.64)	1.90(1.26-2.85)	1.77(1.18-2.65)	1.74(1.16-2.62)
Major depression disorder and other mood disorders	93 (5.34)	142 541 (4.55)	1.11(0.91-1.35)	1.05(0.86-1.27)	1.03(0.84-1.25)
Anxiety and stress-related disorders	126 (7.23)	183 543 (5.85)	1.18(1.00-1.39)	1.11(0.94-1.31)	1.08(0.92-1.28)
Eating disorders	24 (1.38)	28 564 (0.91)	1.51(1.01-2.24)	1.46(0.98-2.17)	1.45(0.97-2.15)
Substance use disorders	65 (3.73)	114 281 (3.64)	0.99(0.78-1.25)	0.92(0.73-1.17)	0.91(0.72-1.16)
Any suicidal behavior	61 (3.50)	88 737 (2.83)	1.19(0.93-1.52)	1.13(0.88-1.44)	1.12(0.87-1.43)
Suicide attempt	60 (3.44)	85 646 (2.73)	1.22(0.95-1.56)	1.16(0.90-1.48)	1.14(0.89-1.46)

*Note:* Significant IRRs are marked in bold.

Tourette syndrome/ chronic tic disorders and death by suicide are not reported separately due to small numbers.

Model 1: Adjusted by parental birth year and offspring sex and birth year.

Model 2: Adjusted by parental birth year and offspring sex and birth year, parental any psychiatric disorders or suicidal behavior.

Model 3: Adjusted by parental birth year and offspring sex and birth year, parental any psychiatric disorders or suicidal behavior, and any autoimmune diseases in parents.

Total numbers and percentage of the specific outcomes may not sum up to that of the combined outcomes as the study participants may have more than one specific outcome.

Abbreviations: PID, primary immunodeficiencies; IRR, incidence rate ratio; CI, confidence intervals.

**eTable 8.** Risk of Psychiatric Disorders and Suicidal Behavior in Offspring of Fathers With Only Primary Immunodeficiencies, Only Autoimmune Disease, or Both

	Offspring of fathers without PID or AD	Offspring of fathers with ONLY PID		Offspring of fathers with ONLY AD		Offspring of fathers with both PID and AD	
	n=3 540 769	n=1 665	IRR (95% CI)	N=746 130	IRR (95% CI)	N=929	IRR (95% CI)
Any psychiatric disorder	438 320 (12.38)	226 (13.57)	1.02 (0.91-1.14)	106 904 (14.33)	1.05 (1.04-1.06)	137 (14.75)	1.16 (0.98-1.37)
Obsessive-compulsive disorder	19 507 (0.55)	8 (0.48)	0.91 (0.49-1.68)	4 629 (0.62)	1.02 (0.97-1.06)	6 (0.65)	0.94 (0.35-2.49)
Attention-deficit/hyperactivity disorder	86 696 (2.45)	45 (2.70)	1.09 (0.83-1.43)	19 610 (2.63)	1.10 (1.07-1.12)	31 (3.34)	1.66 (1.16-2.38)
Autism spectrum disorders	32 641 (0.92)	20 (1.20)	1.23 (0.80-1.88)	7 147 (0.96)	1.07 (1.03-1.11)	6 (0.65)	0.83 (0.35-1.99)
Schizophrenia and other psychotic disorders	28 813 (0.81)	19 (1.14)	1.11 (0.72-1.72)	7 532 (1.01)	0.97 (0.94-1.01)	8 (0.86)	0.95 (0.45-2.00)
Bipolar disorders	24 844 (0.70)	18 (1.08)	1.26 (0.81-1.97)	6 541 (0.88)	0.99 (0.96-1.03)	14 (1.51)	2.13 (1.24-3.65)
Major depression disorder and other mood disorders	161 527 (4.56)	91 (5.47)	1.06 (0.88-1.28)	41 989 (5.63)	1.06 (1.05-1.08)	44 (4.74)	0.93 (0.68-1.28)
Anxiety and stress-related disorders	205 341 (5.80)	104 (6.25)	0.98 (0.82-1.17)	52 544 (7.04)	1.06 (1.04-1.07)	75 (8.07)	1.31 (1.03-1.66)
Eating disorders	26 914 (0.76)	13 (0.78)	1.13 (0.69-1.83)	5 793 (0.78)	1.01 (0.97-1.05)	13 (1.40)	1.85 (1.00-3.41)
Substance use disorders	130 863 (3.70)	59 (3.54)	0.89 (0.71-1.13)	33 024 (4.43)	1.03 (1.02-1.05)	38 (4.09)	0.96 (0.67-1.37)
Any suicidal behavior	105 909 (2.99)	56 (3.36)	1.08 (0.86-1.37)	26 958 (3.61)	1.04 (1.02-1.06)	41 (4.41)	1.22 (0.87-1.73)
Suicide attempt	100 130 (2.83)	53 (3.18)	1.08 (0.85-1.38)	25 403 (3.40)	1.04 (1.03-1.06)	40 (4.31)	1.31 (0.92-1.85)

Note: Significant IRRs are marked in bold.

Tourette syndrome or chronic tic disorders and death by suicide are not reported as a separate entity due to small numbers.

Total numbers and percentage of the specific outcomes may not sum up to that of the combined outcomes as the study participants may have more than one specific outcome.

Abbreviations: PID, primary immunodeficiencies; AD, autoimmune diseases; IRR, incidence rate ratio; CI, confidence intervals.

**eTable 9.** Risk of Psychiatric Disorders and Suicidal Behavior in Offspring of Mothers With Primary Immunodeficiencies, Excluding Offspring With Own Record of Primary Immunodeficiency

	Offspring of mothers with PID n=4 577	Offspring of mothers without PID n=4 284 229	IRR (95% CI) Model 1	IRR (95% CI) Model 2	IRR (95% CI) Model 3
Any psychiatric disorder	785 (17.15)	544 592 (12.71)	1.33 (1.25-1.42)	1.19 (1.12-1.27)	1.18 (1.10-1.25)
Obsessive-compulsive disorder	38 (0.83)	24 099 (0.56)	1.50 (1.09-2.05)	1.35 (0.98-1.85)	1.33 (0.97-1.82)
Tourette and chronic tic disorders	6 (0.13)	4 938 (0.12)	1.45 (0.65-3.23)	1.24 (0.56-2.76)	1.17 (0.53-2.61)
Attention-deficit/hyperactivity disorder	146 (3.19)	106 185 (2.48)	1.59 (1.36-1.86)	1.34 (1.14-1.57)	1.30 (1.11-1.52)
Autism spectrum disorders	59 (1.29)	39 720 (0.93)	1.71 (1.33-2.20)	1.50 (1.16-1.93)	1.46 (1.13-1.88)
Schizophrenia and other psychotic disorders	63 (1.38)	36 303 (0.85)	1.36 (1.06-1.73)	1.18 (0.92-1.50)	1.18 (0.92-1.50)
Bipolar disorders	77 (1.68)	31 346 (0.73)	2.04 (1.63-2.54)	1.77 (1.42-2.20)	1.75 (1.40-2.18)
Major depression disorder and other mood disorders	328 (7.17)	203 249 (4.74)	1.41 (1.27-1.56)	1.25 (1.13-1.39)	1.23 (1.11-1.37)
Anxiety and stress-related disorders	386 (8.43)	257 537 (6.01)	1.32 (1.20-1.45)	1.18 (1.07-1.29)	1.16 (1.05-1.27)
Eating disorders	40 (0.87)	32 662 (0.76)	1.24 (0.91-1.68)	1.17 (0.86-1.59)	1.16 (0.85-1.57)
Substance use disorders	255 (5.57)	163 731 (3.82)	1.36 (1.21-1.54)	1.18 (1.05-1.33)	1.17 (1.04-1.32)
Any suicidal behavior	213 (4.65)	132 721 (3.10)	1.38 (1.21-1.58)	1.21 (1.06-1.38)	1.20 (1.05-1.36)
Suicide attempt	199 (4.35)	125 390 (2.93)	1.38 (1.21-1.58)	1.21 (1.06-1.39)	1.19 (1.04-1.37)
Death by suicide	16 (0.35)	10 566 (0.25)	1.12 (0.68-1.82)	0.95 (0.58-1.55)	0.95 (0.58-1.56)

Note: Significant IRRs are marked in bold.

Model 1: Adjusted by parental birth year and offspring sex and birth year.

Model 2: Adjusted by parental birth year and offspring sex and birth year, parental any psychiatric disorders or suicidal behavior.

Model 3: Adjusted by parental birth year and offspring sex and birth year, parental any psychiatric disorders or suicidal behavior, and any autoimmune diseases in parents.

Total numbers and percentage of the specific outcomes may not sum up to that of the combined outcomes as the study participants may have more than one specific outcome.

Abbreviations: PID, primary immunodeficiencies; IRR, incidence rate ratio; CI, confidence intervals.

**eTable 10.** Risk of Psychiatric Disorders and Suicidal Behavior in Offspring of Mothers With Primary Immunodeficiencies, Excluding Offspring With Own Record of Autoimmune Disease

	Offspring of mothers with PID n=4 280	Offspring of mothers without PID n=4 041 410	IRR (95% CI) Model 1	IRR (95% CI) Model 2	IRR (95% CI) Model 3
Any psychiatric disorder	712 (16.64)	500 056 (12.37)	1.33 (1.25-1.42)	1.19 (1.12-1.27)	1.18 (1.10-1.26)
Obsessive-compulsive disorder	35 (0.82)	22 161 (0.55)	1.51 (1.09-2.10)	1.36 (0.98-1.89)	1.34 (0.97-1.87)
Tourette and chronic tic disorders	5 (0.12)	4 593 (0.11)	1.31 (0.55-3.15)	1.12 (0.47-2.69)	1.06 (0.44-2.53)
Attention-deficit/hyperactivity disorder	136 (3.18)	98 781 (2.44)	1.62 (1.37-1.91)	1.35 (1.15-1.59)	1.32 (1.12-1.55)
Autism spectrum disorders	55 (1.29)	36 788 (0.91)	1.74 (1.34-2.26)	1.52 (1.17-1.97)	1.48 (1.14-1.92)
Schizophrenia and other psychotic disorders	55 (1.29)	33 277 (0.82)	1.30 (1.00-1.69)	1.13 (0.87-1.47)	1.13 (0.87-1.47)
Bipolar disorders	69 (1.61)	28 388 (0.70)	2.04 (1.61-2.57)	1.77 (1.40-2.23)	1.75 (1.39-2.21)
Major depression disorder and other mood disorders	291 (6.80)	184 010 (4.55)	1.40 (1.25-1.56)	1.24 (1.11-1.39)	1.22 (1.10-1.37)
Anxiety and stress-related disorders	345 (8.06)	234 680 (5.81)	1.31 (1.19-1.45)	1.17 (1.06-1.29)	1.15 (1.04-1.27)
Eating disorders	36 (0.84)	29 645 (0.73)	1.24 (0.90-1.72)	1.17 (0.85-1.62)	1.16 (0.84-1.61)
Substance use disorders	239 (5.58)	150 374 (3.72)	1.41 (1.24-1.59)	1.22 (1.08-1.38)	1.21 (1.07-1.36)
Any suicidal behavior	199 (4.65)	121 550 (3.01)	1.43 (1.25-1.63)	1.25 (1.09-1.43)	1.24 (1.08-1.42)
Suicide attempt	186 (4.35)	114 529 (2.83)	1.43 (1.24-1.65)	1.25 (1.09-1.44)	1.24 (1.08-1.43)
Death by suicide	13 (0.30)	10 015 (0.25)	0.96 (0.56-1.66)	0.82 (0.48-1.42)	0.82 (0.48-1.42)

Note: Significant IRRs are marked in bold.

Model 1: Adjusted by parental birth year and offspring sex and birth year.

Model 2: Adjusted by parental birth year and offspring sex and birth year, parental any psychiatric disorders or suicidal behavior.

Model 3: Adjusted by parental birth year and offspring sex and birth year, parental any psychiatric disorders or suicidal behavior, and any autoimmune diseases in parents.

Total numbers and percentage of the specific outcomes may not sum up to that of the combined outcomes as the study participants may have more than one specific outcome.

Abbreviations: PID, primary immunodeficiencies; IRR, incidence rate ratio; CI, confidence intervals.

**eTable 11.** Risk of Psychiatric Disorders and Suicidal Behavior in Offspring of Mothers With Primary Immunodeficiencies, Excluding Offspring With Own Record of Primary Immunodeficiency and Autoimmune Disease

	Offspring of mothers with PID n=4 205	Offspring of mothers without PID n=4 039 480	IRR (95% CI) Model 1	IRR (95% CI) Model 2	IRR (95% CI) Model 3
Any psychiatric disorder	700 (16.65)	499 624 (12.37)	1.33 (1.25-1.43)	1.19 (1.12-1.28)	1.18 (1.10-1.26)
Obsessive-compulsive disorder	34 (0.81)	22 132 (0.55)	1.49 (1.07-2.09)	1.35 (0.96-1.88)	1.33 (0.95-1.86)
Tourette and chronic tic disorders	5 (0.12)	4 590 (0.11)	1.35 (0.56-3.23)	1.15 (0.48-2.76)	1.08 (0.45-2.60)
Attention-deficit/hyperactivity disorder	132 (3.14)	98 693 (2.44)	1.61 (1.36-1.90)	1.34 (1.14-1.59)	1.31 (1.11-1.54)
Autism spectrum disorders	54 (1.28)	36 740 (0.91)	1.75 (1.34-2.27)	1.52 (1.17-1.98)	1.49 (1.14-1.93)
Schizophrenia and other psychotic disorders	55 (1.31)	33 243 (0.82)	1.32 (1.02-1.72)	1.15 (0.88-1.49)	1.15 (0.88-1.49)
Bipolar disorders	69 (1.64)	28 359 (0.70)	2.07 (1.64-2.62)	1.80 (1.42-2.27)	1.78 (1.41-2.25)
Major depression disorder and other mood disorders	287 (6.83)	183 839 (4.55)	1.40 (1.25-1.56)	1.25 (1.12-1.39)	1.23 (1.10-1.37)
Anxiety and stress-related disorders	342 (8.13)	234 451 (5.80)	1.32 (1.20-1.46)	1.18 (1.06-1.30)	1.16 (1.05-1.28)
Eating disorders	35 (0.83)	29 617 (0.73)	1.23 (0.89-1.71)	1.16 (0.84-1.61)	1.15 (0.83-1.60)
Substance use disorders	237 (5.64)	150 261 (3.72)	1.42 (1.25-1.61)	1.23 (1.09-1.39)	1.22 (1.08-1.38)
Any suicidal behavior	195 (4.64)	121 454 (3.01)	1.42 (1.24-1.63)	1.25 (1.09-1.43)	1.23 (1.08-1.41)
Suicide attempt	182 (4.33)	114 435 (2.83)	1.43 (1.24-1.64)	1.25 (1.09-1.44)	1.24 (1.07-1.42)
Death by suicide	13 (0.31)	10 009 (0.25)	0.98 (0.57-1.68)	0.84 (0.49-1.44)	0.84 (0.49-1.44)

Note: Significant IRRs are marked in bold.

Model 1: Adjusted by parental birth year and offspring sex and birth year.

Model 2: Adjusted by parental birth year and offspring sex and birth year, parental any psychiatric disorders or suicidal behavior.

Model 3: Adjusted by parental birth year and offspring sex and birth year, parental any psychiatric disorders or suicidal behavior, and any autoimmune diseases in parents.

Total numbers and percentage of the specific outcomes may not sum up to that of the combined outcomes as the study participants may have more than one specific outcome.

Abbreviations: PID, primary immunodeficiencies; IRR, incidence rate ratio; CI, confidence intervals.

**eTable 12.** Risk of Psychiatric Disorders and Suicidal Behavior in Offspring of Fathers With Primary Immunodeficiencies, Excluding Offspring With Own Record of Primary Immunodeficiency

	Offspring of fathers with PID n=2 565	Offspring of fathers without PID n=4 284 229	IRR (95% CI) Model 1	IRR (95% CI) Model 2	IRR (95% CI) Model 3
Any psychiatric disorder	361 (14.07)	544 592 (12.71)	1.10 (1.00-1.22)	1.06 (0.96-1.16)	1.04 (0.95-1.14)
Obsessive-compulsive disorder	14 (0.55)	24 099 (0.56)	0.97 (0.57-1.63)	0.92 (0.55-1.56)	0.91 (0.54-1.54)
Attention-deficit/hyperactivity disorder	76 (2.96)	106 185 (2.48)	1.37 (1.10-1.70)	1.24 (1.00-1.55)	1.21 (0.97-1.50)
Autism spectrum disorders	26 (1.01)	39 720 (0.93)	1.22 (0.83-1.79)	1.13 (0.77-1.66)	1.10 (0.75-1.62)
Schizophrenia and other psychotic disorders	27 (1.05)	36 303 (0.85)	1.13 (0.77-1.64)	1.08 (0.74-1.57)	1.08 (0.74-1.57)
Bipolar disorders	32 (1.25)	31 346 (0.73)	1.60 (1.13-2.26)	1.53 (1.08-2.16)	1.51 (1.07-2.14)
Major depression disorder and other mood disorders	134 (5.22)	203 249 (4.74)	1.06 (0.90-1.25)	1.02 (0.87-1.20)	1.00 (0.85-1.18)
Anxiety and stress-related disorders	178 (6.94)	257 537 (6.01)	1.12 (0.97-1.29)	1.08 (0.93-1.24)	1.06 (0.92-1.22)
Eating disorders	26 (1.01)	32 662 (0.76)	1.38 (0.94-2.02)	1.35 (0.92-1.97)	1.33 (0.91-1.95)
Substance use disorders	97 (3.78)	163 731 (3.82)	0.97 (0.80-1.17)	0.92 (0.75-1.11)	0.91 (0.75-1.10)
Any suicidal behavior	97 (3.78)	132 721 (3.10)	1.18 (0.97-1.43)	1.13 (0.93-1.37)	1.12 (0.92-1.36)
Suicide attempt	93 (3.63)	125 390 (2.93)	1.20 (0.99-1.47)	1.15 (0.94-1.40)	1.14 (0.93-1.39)
Death by suicide	8 (0.31)	10 566 (0.25)	1.13 (0.57-2.25)	1.07 (0.54-2.14)	1.07 (0.54-2.15)

Note: Significant IRRs are marked in bold.

Tourette syndrome or chronic tic disorders are not reported separately due to small numbers.

Model 1: Adjusted by parental birth year and offspring sex and birth year.

Model 2: Adjusted by parental birth year and offspring sex and birth year, parental any psychiatric disorders or suicidal behavior.

Model 3: Adjusted by parental birth year and offspring sex and birth year, parental any psychiatric disorders or suicidal behavior, and any autoimmune diseases in parents.

Total numbers and percentage of the specific outcomes may not sum up to that of the combined outcomes as the study participants may have more than one specific outcome.

Abbreviations: PID, primary immunodeficiencies; IRR, incidence rate ratio; CI, confidence intervals.

**eTable 13.** Risk of Psychiatric Disorders and Suicidal Behavior in Offspring of Fathers With Primary Immunodeficiencies, Excluding Offspring With Own Record of Autoimmune Disease

	Offspring of fathers with PID n=2 405	Offspring of fathers without PID n=4 041 410	IRR (95% CI) Model 1	IRR (95% CI) Model 2	IRR (95% CI) Model 3
Any psychiatric disorder	319 (13.26)	500 056 (12.37)	1.07 (0.97-1.18)	1.02 (0.92-1.13)	1.01 (0.91-1.12)
Obsessive-compulsive disorder	14 (0.58)	22 161 (0.55)	1.06 (0.63-1.78)	1.01 (0.60-1.70)	1.00 (0.59-1.68)
Attention-deficit/hyperactivity disorder	65 (2.70)	98 781 (2.44)	1.27 (1.00-1.62)	1.16 (0.91-1.47)	1.13 (0.89-1.43)
Autism spectrum disorders	24 (1.00)	36 788 (0.91)	1.23 (0.83-1.83)	1.14 (0.77-1.70)	1.12 (0.75-1.66)
Schizophrenia and other psychotic disorders	26 (1.08)	33 277 (0.82)	1.18 (0.81-1.73)	1.13 (0.77-1.65)	1.13 (0.77-1.65)
Bipolar disorders	25 (1.04)	28 388 (0.70)	1.38 (0.94-2.05)	1.32 (0.89-1.95)	1.31 (0.89-1.93)
Major depression disorder and other mood disorders	115 (4.78)	184 010 (4.55)	1.01 (0.85-1.21)	0.97 (0.81-1.16)	0.96 (0.80-1.14)
Anxiety and stress-related disorders	157 (6.53)	234 680 (5.81)	1.09 (0.94-1.27)	1.04 (0.90-1.21)	1.03 (0.89-1.20)
Eating disorders	20 (0.83)	29 645 (0.73)	1.18 (0.76-1.82)	1.15 (0.74-1.78)	1.14 (0.74-1.76)
Substance use disorders	90 (3.74)	150 374 (3.72)	0.98 (0.80-1.20)	0.93 (0.76-1.13)	0.92 (0.75-1.12)
Any suicidal behavior	89 (3.70)	121 550 (3.01)	1.19 (0.97-1.45)	1.13 (0.92-1.39)	1.12 (0.92-1.37)
Suicide attempt	85 (3.53)	114 529 (2.83)	1.21 (0.98-1.49)	1.15 (0.94-1.42)	1.14 (0.93-1.41)
Death by suicide	8 (0.33)	10 015 (0.25)	1.18 (0.59-2.36)	1.12 (0.56-2.24)	1.12 (0.56-2.24)

Note: Significant IRRs are marked in bold.

Tourette syndrome or chronic tic disorders are not reported as a separate entity due to small numbers.

Model 1: Adjusted by parental birth year and offspring sex and birth year.

Model 2: Adjusted by parental birth year and offspring sex and birth year, parental any psychiatric disorders or suicidal behavior.

Model 3: Adjusted by parental birth year and offspring sex and birth year, parental any psychiatric disorders or suicidal behavior, and any autoimmune diseases in parents.

Total numbers and percentage of the specific outcomes may not sum up to that of the combined outcomes as the study participants may have more than one specific outcome.

Abbreviations: PID, primary immunodeficiencies; IRR, incidence rate ratio; CI, confidence intervals.



**eTable 14.** Risk of Psychiatric Disorders and Suicidal Behavior in Offspring of Fathers With Primary Immunodeficiencies, Excluding Offspring With Own Record of Primary Immunodeficiency and Autoimmune Disease

	Offspring of fathers with PID n=2 384	Offspring of fathers without PID n=4 039 480	IRR (95% CI) Model 1	IRR (95% CI) Model 2	IRR (95% CI) Model 3
Any psychiatric disorder	317 (13.30)	499 624 (12.37)	1.07 (0.97-1.19)	1.02 (0.93-1.13)	1.01 (0.91-1.12)
Obsessive-compulsive disorder	14 (0.59)	22 132 (0.55)	1.07 (0.63-1.80)	1.02 (0.61-1.72)	1.01 (0.60-1.70)
Attention-deficit/hyperactivity disorder	65 (2.73)	98 693 (2.44)	1.29 (1.01-1.63)	1.17 (0.92-1.48)	1.14 (0.90-1.45)
Autism spectrum disorders	24 (1.01)	36 740 (0.91)	1.24 (0.83-1.85)	1.15 (0.77-1.72)	1.13 (0.76-1.68)
Schizophrenia and other psychotic disorders	26 (1.09)	33 243 (0.82)	1.19 (0.81-1.75)	1.14 (0.77-1.67)	1.14 (0.78-1.67)
Bipolar disorders	25 (1.05)	28 359 (0.70)	1.40 (0.95-2.07)	1.33 (0.90-1.97)	1.32 (0.90-1.95)
Major depression disorder and other mood disorders	114 (4.78)	183 839 (4.55)	1.01 (0.85-1.21)	0.97 (0.81-1.16)	0.96 (0.80-1.14)
Anxiety and stress-related disorders	156 (6.54)	234 451 (5.80)	1.09 (0.94-1.27)	1.05 (0.90-1.22)	1.03 (0.89-1.20)
Eating disorders	20 (0.84)	29 617 (0.73)	1.19 (0.77-1.84)	1.16 (0.75-1.79)	1.15 (0.74-1.78)
Substance use disorders	90 (3.78)	150 261 (3.72)	0.99 (0.81-1.21)	0.93 (0.76-1.14)	0.93 (0.76-1.13)
Any suicidal behavior	89 (3.73)	121 454 (3.01)	1.20 (0.98-1.47)	1.14 (0.93-1.40)	1.13 (0.92-1.39)
Suicide attempt	85 (3.57)	114 435 (2.83)	1.22 (0.99-1.50)	1.16 (0.94-1.43)	1.15 (0.94-1.42)
Death by suicide	8 (0.34)	10 009 (0.25)	1.19 (0.59-2.37)	1.13 (0.56-2.25)	1.13 (0.56-2.25)

Note: Significant IRRs are marked in bold.

Tourette syndrome or chronic tic disorders are not reported as a separate entity due to small numbers.

Model 1: Adjusted by parental birth year and offspring sex and birth year.

Model 2: Adjusted by parental birth year and offspring sex and birth year, parental any psychiatric disorders or suicidal behavior.

Model 3: Adjusted by parental birth year and offspring sex and birth year, parental any psychiatric disorders or suicidal behavior, and any autoimmune diseases in parents.

Total numbers and percentage of the specific outcomes may not sum up to that of the combined outcomes as the study participants may have more than one specific outcome.

Abbreviations: PID, primary immunodeficiencies; IRR, incidence rate ratio; CI, confidence intervals.

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