

The burden of mental disorders, substance use disorders and self-harm among young people in Europe, 1990–2019: findings from the Global Burden of Disease study 2019

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Background

Mental health conditions (i.e. mental disorders (MDs), substance use disorders (SUDs) and self-harm behaviours) are important causes of disease burden among young people in high-income countries, with **conduct disorder, depression and anxiety disorder ranking among the top ten causes of years lived with disability (YLDs).**

Reiner RC, Jr., Olsen HE, Ikeda CT, et al. Diseases, Injuries, and Risk Factors in Child and Adolescent Health, 1990 to 2017: Findings From the Global Burden of Diseases, Injuries, and Risk Factors 2017 Study. *JAMA pediatrics* 2019; **173**(6): e190337.

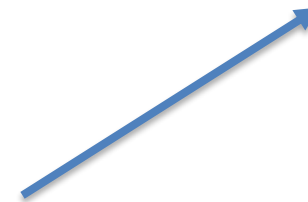
Global burden of 369 diseases and injuries in 204 countries and territories, 1990-2019: a systematic analysis for the Global Burden of Disease Study 2019. *Lancet (London, England)* 2020; **396**(10258): 1204-22.

Architecture and functioning of child and adolescent mental health services: a 28-country survey in Europe

Giulia Signorini, Swaran P Singh, Vlatka Boricevic-Marsanic, Gwen Dieleman, Katarina Dodig-Ćurković, Tomislav Franić, Suzanne E Gerritsen, James Griffin, Athanasios Maras, Fiona McNicholas, Lesley O'Hara, Diane Purper-Ouakil, Moli Paul, Ulrike Schulze, Cathy Street, Sabine Tremmery, Helena Tuomainen, Frank Verhulst, Jane Warwick, Giovanni de Girolamo, for the MILESTONE Consortium

Background

- Mental health is a major public health issue for European young people, with great heterogeneity in resource allocation for child and adolescent mental health services (CAMHS)
- Many mental health conditions remain undetected and unmanaged for a long time



Background

Representative population-based studies are needed, serving also as a baseline measure for COVID-19 pre-pandemic data.



Background

The Global Burden of Disease (GBD) study 2019 provides information on trends in the health status of populations and changes in the leading causes of disease burden over time by assessing prevalence, incidence, premature deaths and non-fatal health loss or disability.



Aims

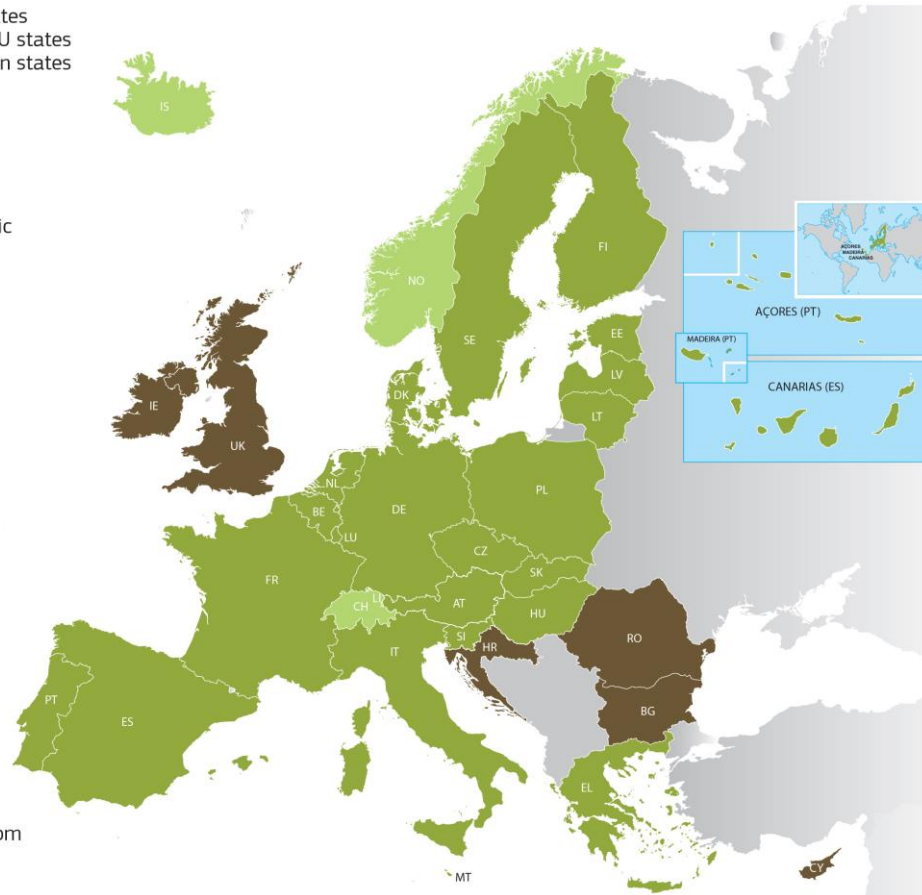
1. to describe the prevalence, incidence, years lived with disability (YLDs) and years of life lost (YLLs) of different mental disorders (MDs), substance use disorders (SUDs) and self-harm in males and females aged 10–14, 15-19 and 20-24 years, from 1990 to 2019, among 31 European countries;
2. to describe trends in the prevalence and incidence of these disorders across European countries over this 30-year period
3. to correlate the prevalence and incidence of these disorders and with the Socio-Demographic Index (SDI) of each European country.

Countries included:

28 European Union countries (UK was still part of EU in 2019), plus Iceland, Norway and Switzerland

- EU Schengen states
- Non-Schengen EU states
- Non-EU Schengen states

- AT Austria
- BE Belgium
- BG Bulgaria
- CH Switzerland
- CY Cyprus
- CZ Czech Republic
- DE Germany
- DK Denmark
- EE Estonia
- EL Greece
- ES Spain
- FI Finland
- FR France
- HR Croatia
- HU Hungary
- IE Ireland
- IS Iceland
- IT Italy
- LT Lithuania
- LU Luxembourg
- LV Latvia
- MT Malta
- NL Netherlands
- NO Norway
- PL Poland
- PT Portugal
- RO Romania
- SE Sweden
- SI Slovenia
- SK Slovakia
- UK United Kingdom



Methods and material

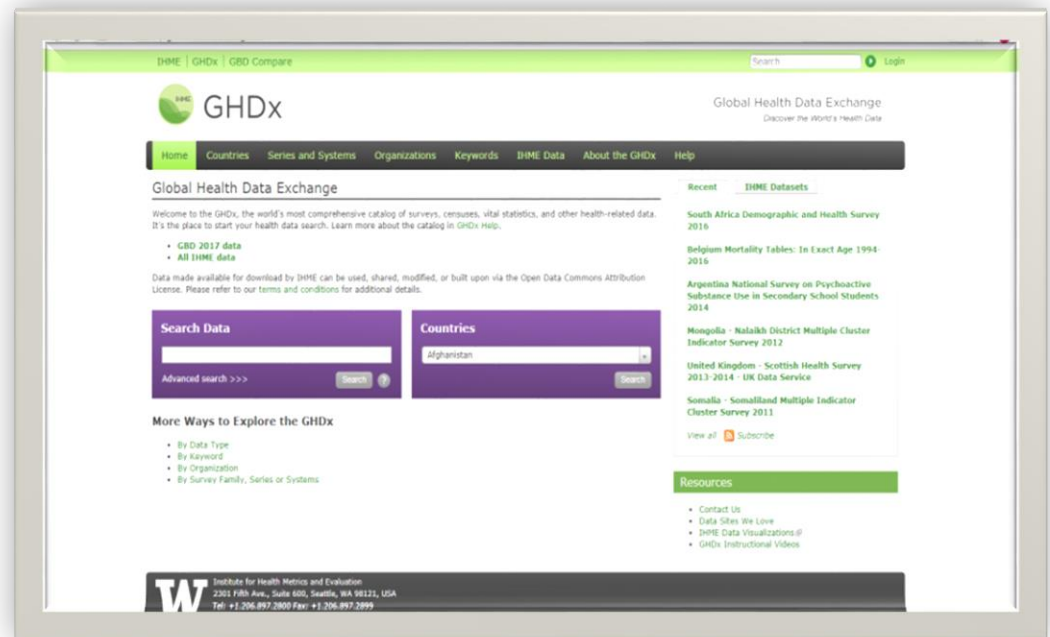
- The Global Burden of Disease study provides annual estimates on prevalence, incidence and mortality for 369 diseases and injuries.
- Our analysis employed estimates from GBD 2019, which are available on the Global Health Data Exchange (GHDx).

Sex	M & F			
Age	10-24 yo (<i>85 millions in 2019</i>)			
Measures	prevalence (MDs and SUDs)	incidence (self-harm)	YLDs	YLLs
Disorders (level 2 and 3)	MDs: anxiety disorders, attention deficit/hyperactivity disorder (ADHD), autism spectrum disorder (ASD), bipolar disorder, conduct disorder, depressive disorders, eating disorders, idiopathic developmental intellectual disability (IDID), schizophrenia, other mental disorders	SUDs: alcohol use disorders, drug use disorders	Self-harm	
Metric	<ul style="list-style-type: none"> • count • rates per 100,000 • percentage changes from 1990 to 2019 	relative 95% uncertainty intervals (UIs)		

Methods and material

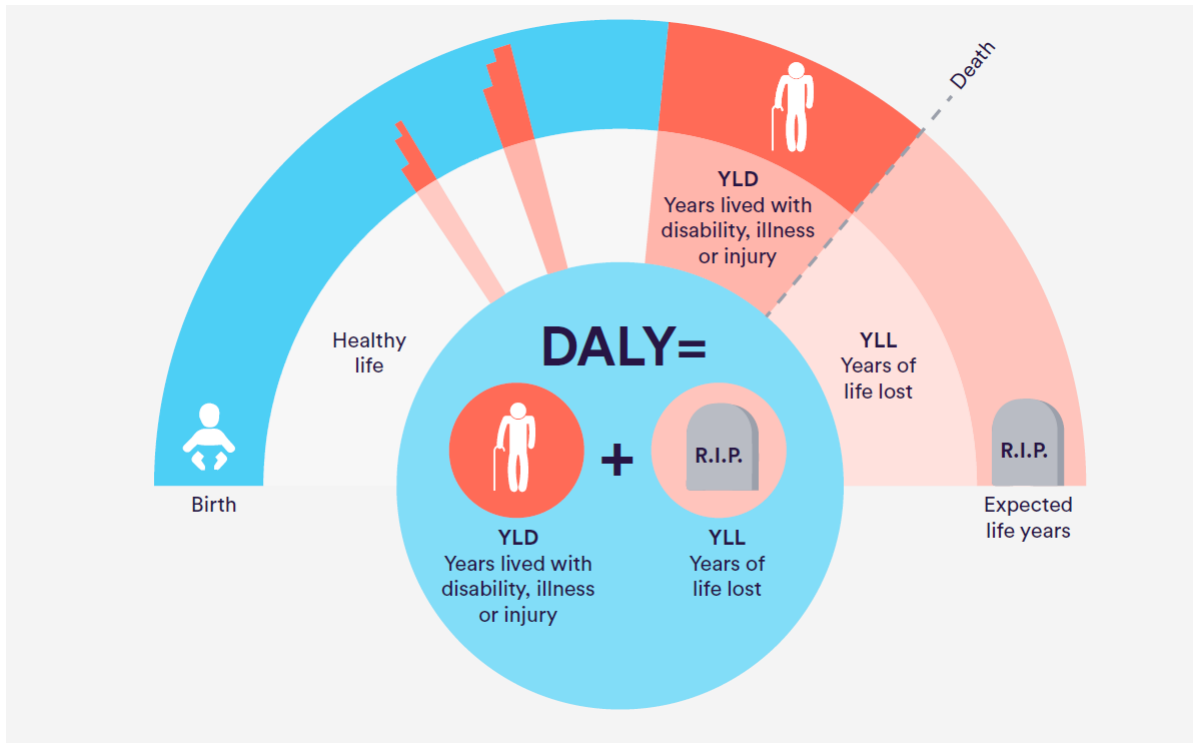
Data sources:

The estimates were based on data on incidence and prevalence identified through 136 systematic searches published and unpublished documents, survey microdata, administrative records of health encounters, registries, and disease surveillance system that are catalogued in the Global Health Data Exchange website (<http://ghdx.healthdata.org>).



Methods and material

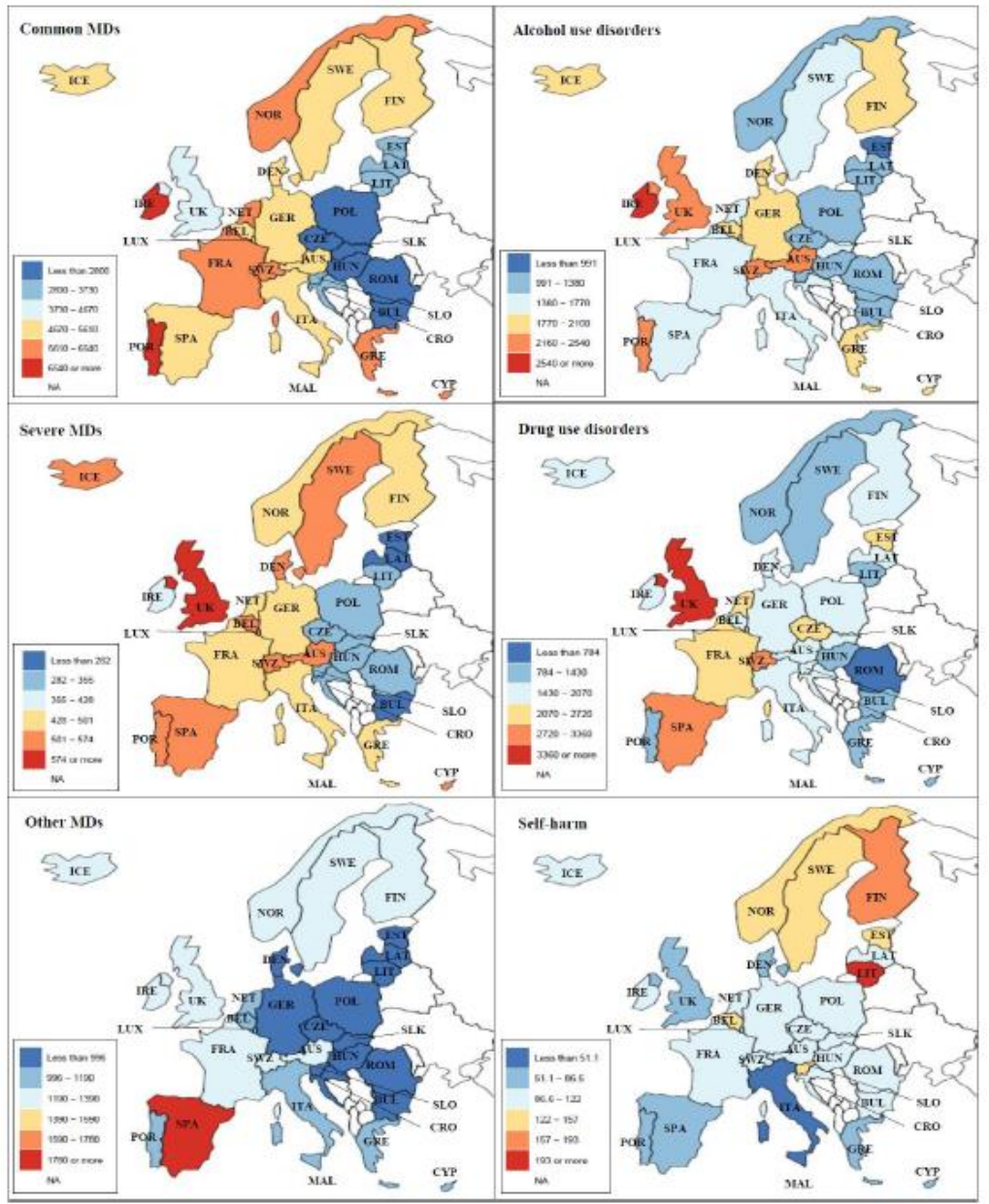
GBD measures



YLLs: self-harm, eating disorders, alcohol use disorders and drug use disorders (considered causes of death by WHO/ICD-system)

Main results

Figure 1: Prevalence per 100,000 population aged 10-24 years of common, severe and other mental disorders (MDs), alcohol and drug use disorders, and incidence rate of self-harm in 31 European countries, both sexes, age 10-24, year 2019



Common MDs: anxiety and depressive disorders; Severe MDs: schizophrenia and bipolar disorder; Other MDs: eating disorders, attention deficit/hyperactivity disorder, autism spectrum disorder, conduct disorders, idiopathic developmental intellectual disability, other mental disorders

Main results

MDs: 13.6 million (95% UI 15.5–11.9):
SUDs: 3.2 million (95% UI 2.6–4.0)
Self-harm: 75,770 (95% UI 59,091–95,206)



**17 million (≈ 20%)
mental conditions
among young people
in 2019**

Anxiety disorders:

- Most prevalent condition in 2019 (5.6 million cases)
- Leading cause of YLDs in 2019

Depressive disorders

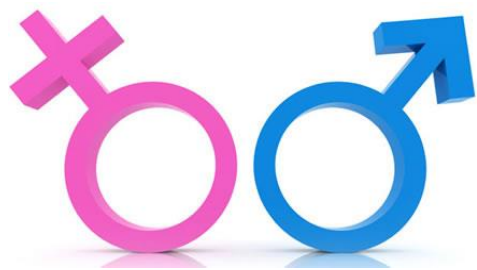
- Second most prevalent condition in 2019 (2.6 million cases)
- Second leading cause of YLDs in 2019

Self-harm

- Leading cause of YLLs



Main results



Males/females ratio:

- ASD = 4·5:1,
- ADHD and SUDs = ~ 2:1;
- Eating disorders = 1:3·5
- Anxiety and depressive disorders = 1:2

Main results

10-14 years:

- ADHD = 5.4 mil cases in males
- Conduct dis = highest YLDs in males
- Anxiety dis = 7.7 mil cases, highest YLDs in females



14-19 years:

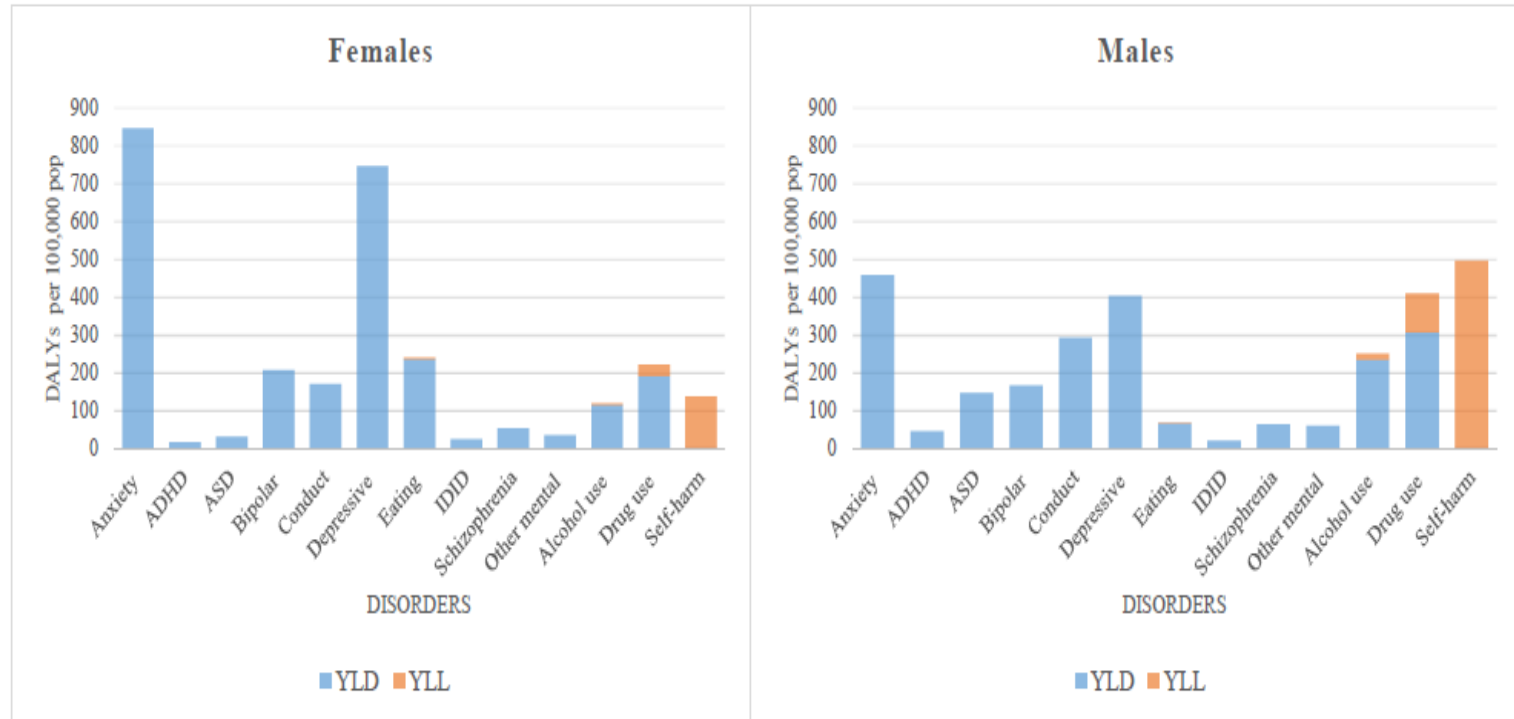
- Anxiety dis and = 5 mil cases in males and 9.3 mil in females, highest YLDs
- Drug use dis = 3.4 mil cases, second YLDs in males

20-24 years:

- Anxiety dis = 4.7 mil cases in males and 8.8 mil in females
- Depression = 4.3 mil in males and 5.6 mil in females, highest YLDs in both
- Drug use dis = 3.4 mil cases in males , second highest YLDs

Main results

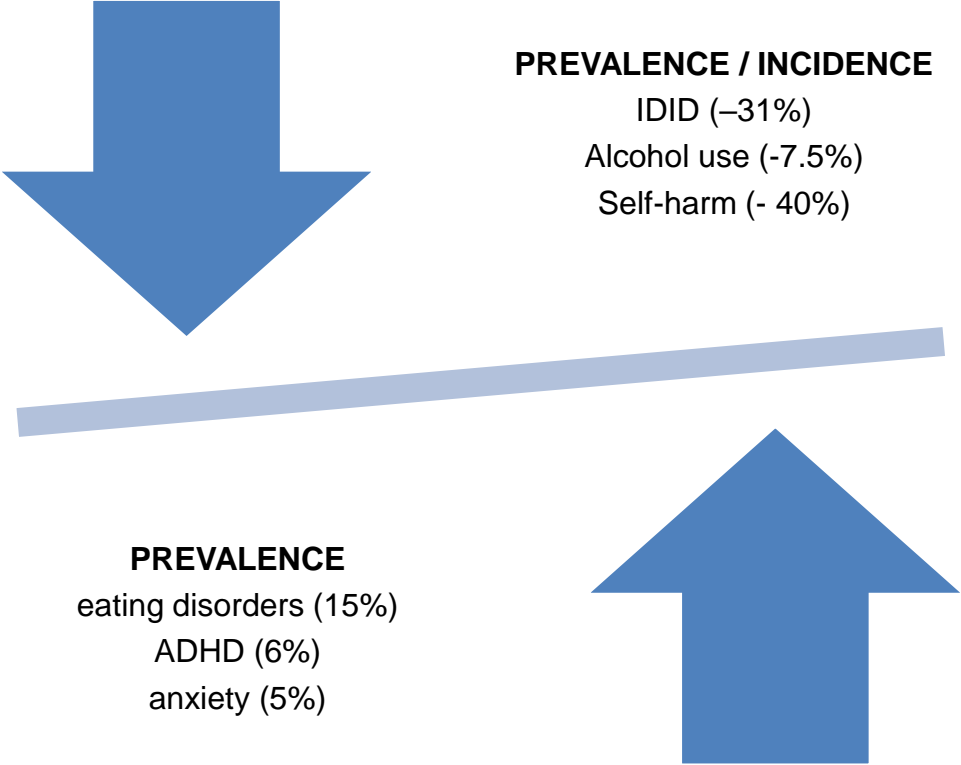
Figure 2: Disability Adjusted Life Years (DALYs) divided in Years Lived with Disability (YLDs) and Years of Life Lost (YLLs) for mental disorders, substance use disorders and self-harm in 31 European countries, females and males, age 10-24, year 2019



ADHD attention deficit/hyperactivity disorder; ASD autism spectrum disorder; IDID idiopathic developmental intellectual disability

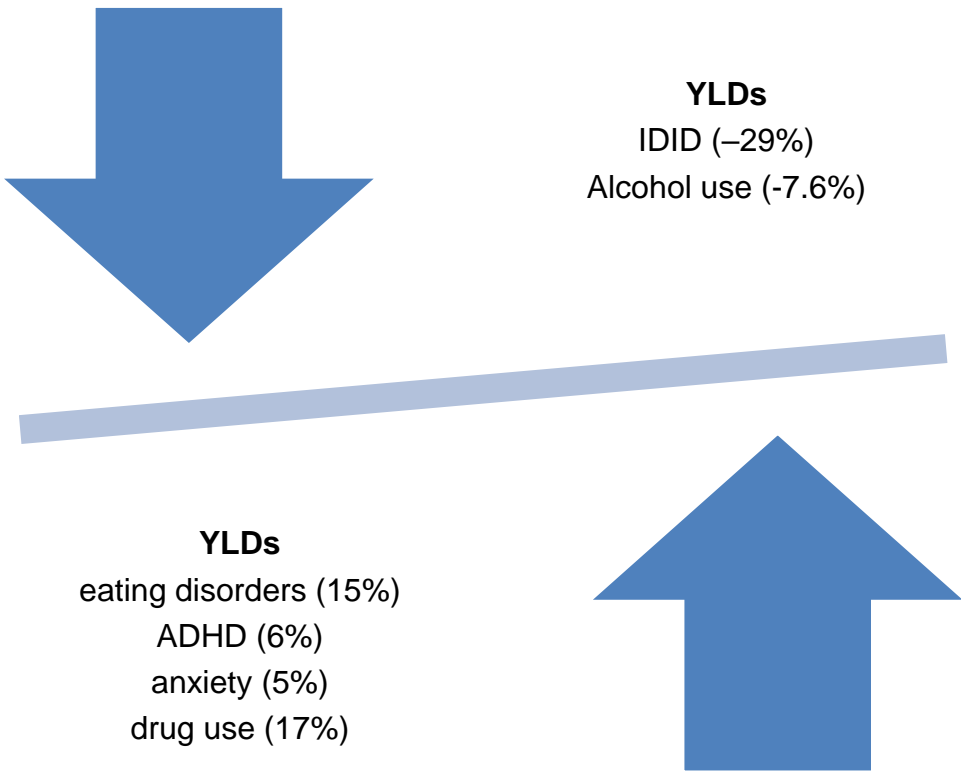
Main results

Main changes 1990-2019



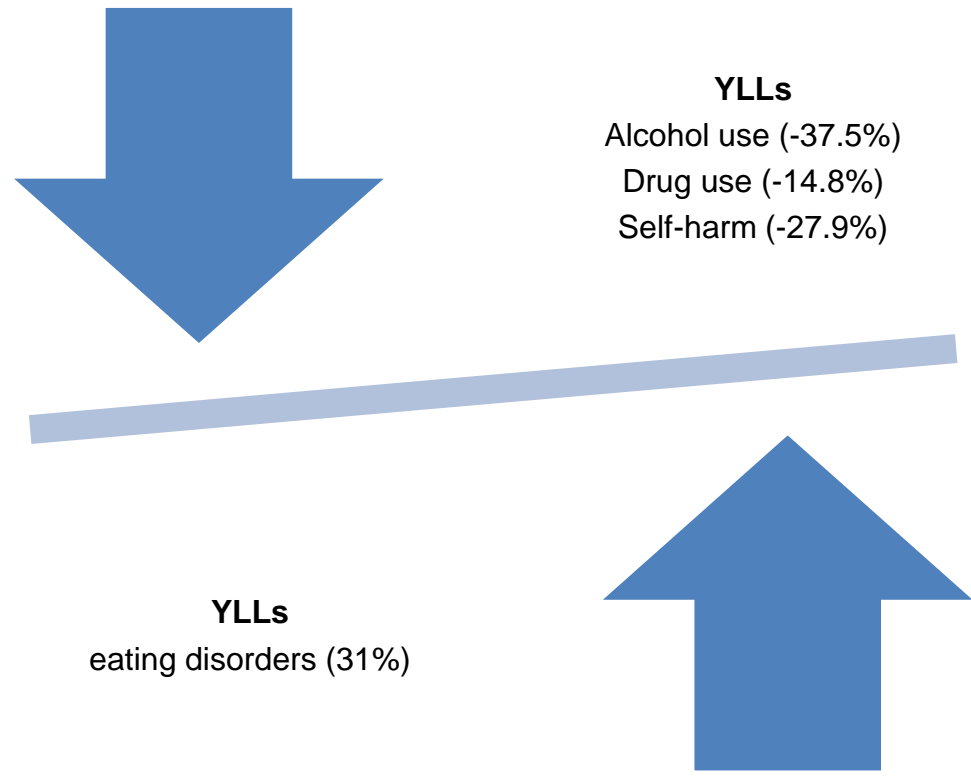
Main results

Main changes 1990-2019



Main results

Main changes 1990-2019



Main results

Table 2: Spearman rank-correlation coefficients and relative P-values for association between prevalence of mental disorders, substance use disorders, incidence of self-harm and Socio Demographic Index in European Union, Iceland, Norway and Switzerland, years 1990-2019, both sexes, age 10-24. Significant results are highlighted in bold

	1990			2019		
	Spearman rank-correlation coefficient (P-value)			Spearman rank-correlation coefficient (P-value)		
Mental disorders	1·0			1·0		
Substance use disorders	0·54 (0·001)	1·0		0·47 (0·008)	1·0	
Self-harm	- 0·04 (0·80)	- 0·03 (0·86)	1·0	- 0·30 (0·10)	- 0·13 (0·47)	1·0
Social demographic Index	0·16 (0·38)	0·41 (0·02)	0·37 (0·04)	0·25 (0·17)	0·35 (0·05)	0·39 (0·03)

Main results

Supplement Table 5: Prevalence per 100,000 population aged 10-24 years of mental disorders in 31 European countries from 1990 to 2019

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Austria	17,813	17,821	17,827	17,822	17,810	17,798	17,789	17,772	17,735	17,695	17,667	17,654	17,650	17,648	17,657	17,665	17,683	17,728	17,776	17,824	17,846	17,862	17,869	17,884	17,885	17,892	17,905	17,923	17,926	17,948
Belgium	16,149	16,136	16,122	16,114	16,112	16,122	16,142	16,175	16,206	16,243	16,264	16,279	16,309	16,334	16,371	16,404	16,423	16,426	16,420	16,410	16,408	16,405	16,403	16,411	16,416	16,412	16,390	16,365	16,328	16,295
Bulgaria	11,719	11,737	11,747	11,756	11,762	11,761	11,750	11,722	11,682	11,646	11,623	11,605	11,585	11,549	11,518	11,493	11,468	11,471	11,460	11,456	11,430	11,387	11,349	11,316	11,288	11,271	11,254	11,245	11,233	11,222
Croatia	11,963	11,967	11,971	11,970	11,970	11,962	11,963	11,950	11,945	11,932	11,918	11,889	11,854	11,803	11,760	11,723	11,693	11,658	11,621	11,596	11,588	11,595	11,609	11,624	11,639	11,635	11,636	11,629	11,627	11,624
Cyprus	17,546	17,514	17,480	17,470	17,451	17,451	17,461	17,477	17,497	17,507	17,511	17,512	17,518	17,520	17,526	17,536	17,531	17,516	17,506	17,496	17,485	17,493	17,514	17,543	17,567	17,581	17,559	17,538	17,555	17,607
Czech Rep	11,440	11,482	11,523	11,543	11,570	11,572	11,566	11,540	11,507	11,477	11,451	11,425	11,401	11,384	11,363	11,362	11,357	11,350	11,333	11,315	11,295	11,268	11,227	11,192	11,155	11,130	11,119	11,095	11,076	11,065
Denmark	15,553	15,543	15,517	15,493	15,469	15,452	15,410	15,355	15,293	15,215	15,160	15,112	15,084	15,057	15,040	15,022	15,005	14,978	14,957	14,948	14,947	14,957	14,965	14,972	14,983	14,983	14,983	14,970	14,989	15,041
Estonia	12,680	12,686	12,691	12,705	12,694	12,686	12,671	12,644	12,623	12,591	12,575	12,537	12,480	12,425	12,377	12,330	12,295	12,250	12,194	12,139	12,087	12,026	11,969	11,910	11,856	11,813	11,799	11,775	11,764	11,762
Finland	18,815	18,595	18,379	18,172	17,988	17,843	17,699	17,520	17,344	17,187	17,101	17,043	16,990	16,952	16,925	16,919	16,929	16,947	16,965	16,981	16,994	17,017	17,063	17,096	17,122	17,123	17,102	17,076	17,037	16,975
France	18,722	18,551	18,407	18,287	18,206	18,170	18,172	18,189	18,219	18,249	18,281	18,319	18,362	18,411	18,440	18,442	18,396	18,317	18,227	18,143	18,093	18,088	18,085	18,089	18,092	18,095	18,113	18,123	18,114	18,105
Germany	15,427	15,530	15,617	15,709	15,771	15,828	15,869	15,933	15,982	16,029	16,058	16,145	16,321	16,525	16,700	16,782	16,755	16,674	16,577	16,489	16,441	16,416	16,407	16,386	16,364	16,344	16,285	16,195	16,120	16,031
Greece	18,098	18,091	18,076	18,074	18,083	18,084	18,158	18,315	18,511	18,670	18,723	18,697	18,632	18,562	18,505	18,476	18,466	18,455	18,439	18,427	18,410	18,360	18,269	18,161	18,075	18,051	18,106	18,159	18,174	18,195
Hungary	11,697	11,726	11,746	11,763	11,779	11,779	11,766	11,741	11,702	11,670	11,643	11,614	11,579	11,548	11,525	11,500	11,480	11,466	11,445	11,426	11,407	11,380	11,341	11,300	11,261	11,232	11,225	11,223	11,215	11,203
Iceland	16,573	16,580	16,575	16,560	16,542	16,544	16,553	16,550	16,550	16,543	16,522	16,498	16,463	16,435	16,429	16,432	16,430	16,406	16,390	16,373	16,361	16,355	16,363	16,368	16,368	16,377	16,377	16,362	16,375	16,405
Ireland	18,916	18,953	18,983	19,008	19,020	19,029	18,943	18,720	18,445	18,202	18,099	18,093	18,105	18,110	18,128	18,161	18,382	18,878	19,457	19,946	20,162	20,172	20,175	20,171	20,185	20,208	20,384	20,530	20,258	19,664
Italy	17,021	16,915	16,807	16,697	16,595	16,496	16,396	16,290	16,187	16,104	16,059	16,050	16,057	16,068	16,081	16,082	16,087	16,114	16,149	16,186	16,218	16,269	16,361	16,459	16,541	16,581	16,573	16,561	16,583	16,637
Latvia	12,627	12,655	12,677	12,685	12,681	12,674	12,653	12,631	12,614	12,609	12,601	12,593	12,571	12,544	12,518	12,497	12,487	12,449	12,411	12,366	12,331	12,297	12,268	12,226	12,186	12,148	12,127	12,097	12,074	12,061
Lithuania	13,229	13,266	13,303	13,328	13,346	13,352	13,391	13,492	13,619	13,728	13,775	13,764	13,732	13,696	13,655	13,623	13,600	13,571	13,538	13,492	13,457	13,388	13,280	13,161	13,063	13,000	12,966	12,933	12,900	12,867
Luxembourg	16,937	16,910	16,880	16,862	16,846	16,832	16,818	16,800	16,793	16,783	16,750	16,713	16,674	16,631	16,589	16,562	16,550	16,526	16,500	16,473	16,469	16,467	16,475	16,477	16,471	16,472	16,468	16,438	16,435	16,463
Malta	17,506	17,491	17,478	17,462	17,451	17,428	17,417	17,408	17,390	17,379	17,372	17,367	17,373	17,392	17,409	17,422	17,420	17,399	17,376	17,349	17,337	17,351	17,378	17,407	17,422	17,437	17,387	17,338	17,362	17,440
Netherlands	17,119	17,208	17,300	17,373	17,438	17,480	17,527	17,591	17,667	17,730	17,783	17,859	17,967	18,082	18,177	18,199	18,194	18,180	18,164	18,154	18,153	18,170	18,227	18,298	18,364	18,383	18,159	17,934	17,947	17,991
Norway	18,534	18,520	18,495	18,463	18,431	18,405	18,332	18,197	18,047	17,919	17,859	17,905	18,044	18,216	18,372	18,450	18,463	18,454	18,437	18,417	18,409	18,398	18,376	18,350	18,331	18,335	18,421	18,488	18,408	18,212
Poland	11,042	11,067	11,089	11,104	11,113	11,119	11,120	11,108	11,093	11,078	11,064	11,041	11,007	10,966	10,929	10,898	10,881	10,866	10,856	10,845	10,832	10,813	10,791	10,769	10,745	10,724	10,708	10,691	10,698	10,735
Portugal	20,295	20,301	20,312	20,324	20,321	20,317	20,350	20,420	20,488	20,563	20,593	20,556	20,486	20,405	20,322	20,278	20,267	20,253	20,242	20,224	20,190	20,112	19,986	19,844	19,736	19,682	19,725	19,783	19,793	19,786
Romania	11,487	11,513	11,538	11,559	11,584	11,595	11,602	11,603	11,601	11,590	11,588	11,591	11,596	11,599	11,611	11,609	11,576	11,536	11,499	11,467	11,430	11,415	11,398	11,391	11,371	11,339	11,315	11,289	11,284	11,281
Slovakia	11,528	11,547	11,567	11,587	11,600	11,604	11,600	11,588	11,574	11,542	11,529	11,516	11,501	11,483	11,467	11,451	11,434	11,408	11,380	11,357	11,333	11,320	11,313	11,310	11,298	11,287	11,270	11,252	11,234	11,220
Slovenia	12,072	12,078	12,084	12,090	12,099	12,113	12,121	12,111	12,093	12,074	12,056	12,029	12,000	11,975	11,939	11,899	11,855	11,785	11,713	11,645	11,602	11,579	11,546	11,516	11,499	11,485	11,470	11,463	11,453	11,445
Spain	19,490	19,400	19,328	19,262	19,200	19,145	19,100	19,035	18,962	18,921	18,898	18,934	19,015	19,132	19,262	19,374	19,553	19,843	20,171	20,448	20,615	20,692	20,748	20,785	20,817	20,845	20,905	20,962	20,831	20,530
Sweden	16,444	16,500	16,535	16,556	16,577	16,582	16,563	16,528	16,494	16,455	16,430	16,433	16,450	16,494	16,548	16,600	16,637	16,656	16,655	16,651	16,645	16,635	16,625	16,607	16,591	16,570	16,548	16,532	16,560	16,633
Switzerland	19,191	19,154	19,132	19,102	19,082	19,063	19,051	19,051	19,045	19,032	19,001	18,912	18,739	18,568	18,426	18,375	18,443	18,574	18,720	18,839	18,890	18,894	18,883	18,863	18,840	18,827	18,794	18,759	18,738	18,723
UK	16,417	16,359	16,298	16,245	16,207	16,185	16,168	16,142	16,110	16,073	16,033	15,971	15,888	15,803	15,734	15,704	15,741	15,835	15,953	16,063	16,137	16,200	16,288	16,374	16,438	16,458	16,370	16,274	16,255	16,248

Red gradations = higher prevalence; White gradations = medium prevalence; Green gradations = lower prevalence

UK United Kingdom



Main results

Supplement Table 6: Prevalence per 100,000 population aged 10-24 years of substance use disorders in 31 European countries from 1990 to 2019

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	
Austria	4,156	4,137	4,096	4,033	3,966	3,909	3,907	3,963	4,040	4,115	4,155	4,195	4,258	4,325	4,387	4,428	4,435	4,435	4,451	4,478	4,503	4,511	4,464	4,380	4,305	4,275	4,249	4,205	4,203	4,239	
Belgium	4,432	4,544	4,646	4,726	4,775	4,784	4,747	4,696	4,637	4,589	4,566	4,501	4,368	4,212	4,080	4,017	4,002	3,989	3,984	3,977	3,980	3,992	4,002	4,021	4,017	4,005	3,984	3,948	3,893	3,808	
Bulgaria	2,358	2,417	2,469	2,507	2,550	2,582	2,620	2,658	2,682	2,698	2,710	2,732	2,765	2,807	2,858	2,912	2,956	3,012	3,060	3,082	3,075	3,041	2,978	2,906	2,831	2,763	2,701	2,636	2,587	2,567	
Croatia	2,826	2,854	2,883	2,915	2,949	2,986	3,018	3,039	3,060	3,086	3,117	3,140	3,159	3,181	3,196	3,198	3,189	3,177	3,168	3,159	3,156	3,161	3,176	3,175	3,171	3,161	3,109	3,056	3,030	2,981	
Cyprus	2,832	2,767	2,708	2,664	2,634	2,626	2,631	2,649	2,681	2,717	2,753	2,797	2,836	2,881	2,926	2,966	3,004	3,037	3,065	3,088	3,108	3,129	3,138	3,134	3,117	3,089	3,049	3,006	2,994	3,015	
Czech Rep	3,449	3,599	3,756	3,913	4,050	4,139	4,196	4,228	4,240	4,231	4,211	4,184	4,170	4,162	4,178	4,234	4,315	4,397	4,478	4,534	4,552	4,543	4,516	4,472	4,403	4,315	4,200	4,077	3,859	3,572	
Denmark	3,861	3,882	3,889	3,903	3,930	3,949	3,947	3,877	3,788	3,701	3,623	3,557	3,503	3,452	3,404	3,370	3,359	3,373	3,405	3,452	3,507	3,544	3,560	3,578	3,578	3,590	3,602	3,599	3,568	3,514	
Estonia	2,843	2,934	3,006	3,063	3,097	3,115	3,127	3,137	3,156	3,184	3,230	3,282	3,349	3,430	3,540	3,652	3,742	3,827	3,921	3,987	4,038	4,044	3,996	3,908	3,782	3,646	3,531	3,415	3,288	3,172	
Finland	3,103	3,112	3,105	3,091	3,108	3,143	3,200	3,268	3,335	3,376	3,400	3,435	3,511	3,617	3,702	3,752	3,749	3,705	3,666	3,638	3,646	3,680	3,720	3,736	3,750	3,743	3,744	3,721	3,623	3,467	
France	4,076	4,059	4,039	4,017	4,000	3,980	3,957	3,929	3,900	3,881	3,883	3,901	3,934	3,978	4,017	4,044	4,065	4,079	4,084	4,085	4,074	4,052	4,032	4,011	4,002	4,007	4,023	4,034	3,988	3,874	
Germany	4,246	4,268	4,257	4,226	4,173	4,136	4,088	4,071	4,069	4,065	4,070	4,083	4,079	4,077	4,082	4,105	4,127	4,139	4,164	4,177	4,191	4,191	4,135	4,001	3,832	3,691	3,630	3,653	3,679	3,672	3,652
Greece	2,709	2,767	2,822	2,858	2,893	2,930	2,953	2,952	2,942	2,927	2,935	2,957	2,978	2,997	3,018	3,020	3,025	3,039	3,049	3,058	3,049	3,017	2,962	2,887	2,813	2,753	2,692	2,646	2,642	2,669	
Hungary	2,431	2,492	2,542	2,595	2,657	2,725	2,770	2,797	2,798	2,781	2,753	2,735	2,722	2,713	2,707	2,711	2,732	2,771	2,814	2,854	2,882	2,889	2,871	2,842	2,806	2,778	2,748	2,715	2,660	2,584	
Iceland	3,296	3,268	3,257	3,254	3,266	3,286	3,324	3,340	3,308	3,261	3,263	3,248	3,237	3,250	3,262	3,258	3,267	3,271	3,300	3,338	3,363	3,401	3,444	3,486	3,505	3,517	3,503	3,488	3,460	3,434	
Ireland	4,586	4,571	4,582	4,608	4,649	4,710	4,760	4,801	4,853	4,917	5,002	5,107	5,225	5,339	5,426	5,452	5,444	5,378	5,286	5,187	5,103	5,028	4,953	4,885	4,829	4,790	4,753	4,737	4,678	4,561	
Italy	4,246	4,309	4,354	4,376	4,376	4,347	4,280	4,179	4,064	3,957	3,880	3,846	3,838	3,840	3,850	3,845	3,838	3,827	3,819	3,812	3,795	3,738	3,637	3,524	3,410	3,335	3,316	3,313	3,271	3,195	
Latvia	3,293	3,393	3,467	3,500	3,500	3,479	3,426	3,344	3,261	3,203	3,171	3,169	3,195	3,243	3,317	3,398	3,465	3,512	3,531	3,521	3,504	3,481	3,434	3,372	3,284	3,201	3,158	3,089	2,932	2,763	
Lithuania	2,282	2,350	2,404	2,431	2,430	2,404	2,361	2,299	2,239	2,194	2,159	2,118	2,064	2,018	1,997	2,010	2,056	2,113	2,169	2,208	2,242	2,280	2,317	2,354	2,383	2,391	2,417	2,423	2,366	2,274	
Luxembourg	4,175	4,213	4,240	4,246	4,233	4,210	4,201	4,190	4,182	4,174	4,163	4,118	4,065	3,996	3,971	3,966	3,973	3,962	3,979	4,018	4,033	4,047	4,070	4,077	4,065	4,074	4,096	4,135	4,155	4,166	
Malta	2,721	2,750	2,786	2,820	2,870	2,917	2,975	3,053	3,133	3,192	3,219	3,228	3,251	3,279	3,311	3,346	3,388	3,419	3,462	3,510	3,554	3,587	3,592	3,562	3,512	3,479	3,500	3,609	3,554	3,446	
Netherlands	3,988	3,958	3,928	3,893	3,848	3,786	3,725	3,648	3,569	3,506	3,468	3,443	3,418	3,396	3,379	3,376	3,385	3,386	3,384	3,382	3,382	3,383	3,388	3,394	3,411	3,432	3,412	3,370	3,379	3,435	
Norway	2,980	2,945	2,908	2,874	2,849	2,836	2,830	2,804	2,766	2,726	2,684	2,636	2,582	2,540	2,506	2,493	2,492	2,493	2,490	2,504	2,527	2,554	2,571	2,579	2,566	2,551	2,517	2,483	2,485	2,509	
Poland	2,509	2,521	2,536	2,554	2,576	2,606	2,641	2,683	2,728	2,776	2,819	2,858	2,897	2,941	2,986	3,029	3,071	3,106	3,130	3,146	3,154	3,160	3,171	3,173	3,163	3,133	3,052	2,963	2,862	2,725	
Portugal	3,994	4,012	4,041	4,071	4,104	4,146	4,198	4,250	4,289	4,307	4,312	4,288	4,245	4,203	4,170	4,131	4,080	4,023	3,956	3,893	3,834	3,802	3,801	3,809	3,822	3,828	3,843	3,855	3,817	3,707	
Romania	1,979	2,032	2,062	2,039	2,026	2,032	2,042	2,045	2,035	2,017	2,005	2,003	1,994	1,978	1,970	1,978	1,988	2,012	2,041	2,062	2,055	2,019	1,964	1,906	1,853	1,805	1,774	1,758	1,768	1,804	
Slovakia	2,570	2,611	2,663	2,730	2,788	2,837	2,884	2,923	2,967	2,998	3,018	3,026	3,019	3,010	3,008	3,032	3,068	3,116	3,157	3,186	3,196	3,193	3,180	3,153	3,116	3,079	3,064	3,049	2,969	2,849	
Slovenia	3,217	3,210	3,215	3,226	3,252	3,279	3,297	3,306	3,308	3,314	3,329	3,363	3,390	3,422	3,449	3,466	3,485	3,505	3,532	3,555	3,560	3,539	3,511	3,466	3,416	3,375	3,338	3,297	3,185	2,975	
Spain	4,479	4,613	4,753	4,896	5,034	5,160	5,281	5,404	5,519	5,610	5,681	5,759	5,858	5,942	6,003	6,024	5,928	5,730	5,499	5,286	5,146	5,073	5,036	5,021	5,000	4,979	4,945	4,890	4,830	4,788	
Sweden	3,200	3,242	3,268	3,289	3,311	3,304	3,243	3,155	3,044	2,939	2,856	2,792	2,752	2,741	2,744	2,784	2,857	2,944	3,048	3,151	3,248	3,339	3,436	3,504	3,532	3,497	3,178	2,862	2,800	2,768	
Switzerland	6,268	6,259	6,228	6,174	6,107	6,039	5,937	5,822	5,704	5,615	5,576	5,594	5,648	5,730	5,808	5,845	5,833	5,784	5,722	5,663	5,643	5,670	5,689	5,698	5,695	5,689	5,657	5,612	5,402	4,986	
UK	5,964	5,964	5,951	5,925	5,890	5,838	5,756	5,653	5,563	5,514	5,504	5,522	5,559	5,610	5,655	5,701	5,767	5,854	5,947	6,033	6,098	6,163	6,234	6,286	6,302	6,270	6,121	5,954	5,818	5,643	

Red gradations = higher prevalence; White gradations = medium prevalence; Green gradations = lower prevalence

UK United Kingdom

Main results

Supplement Table 7: Incidence per 100,000 population aged 10-24 years of self-harm in 31 European countries from 1990 to 2019

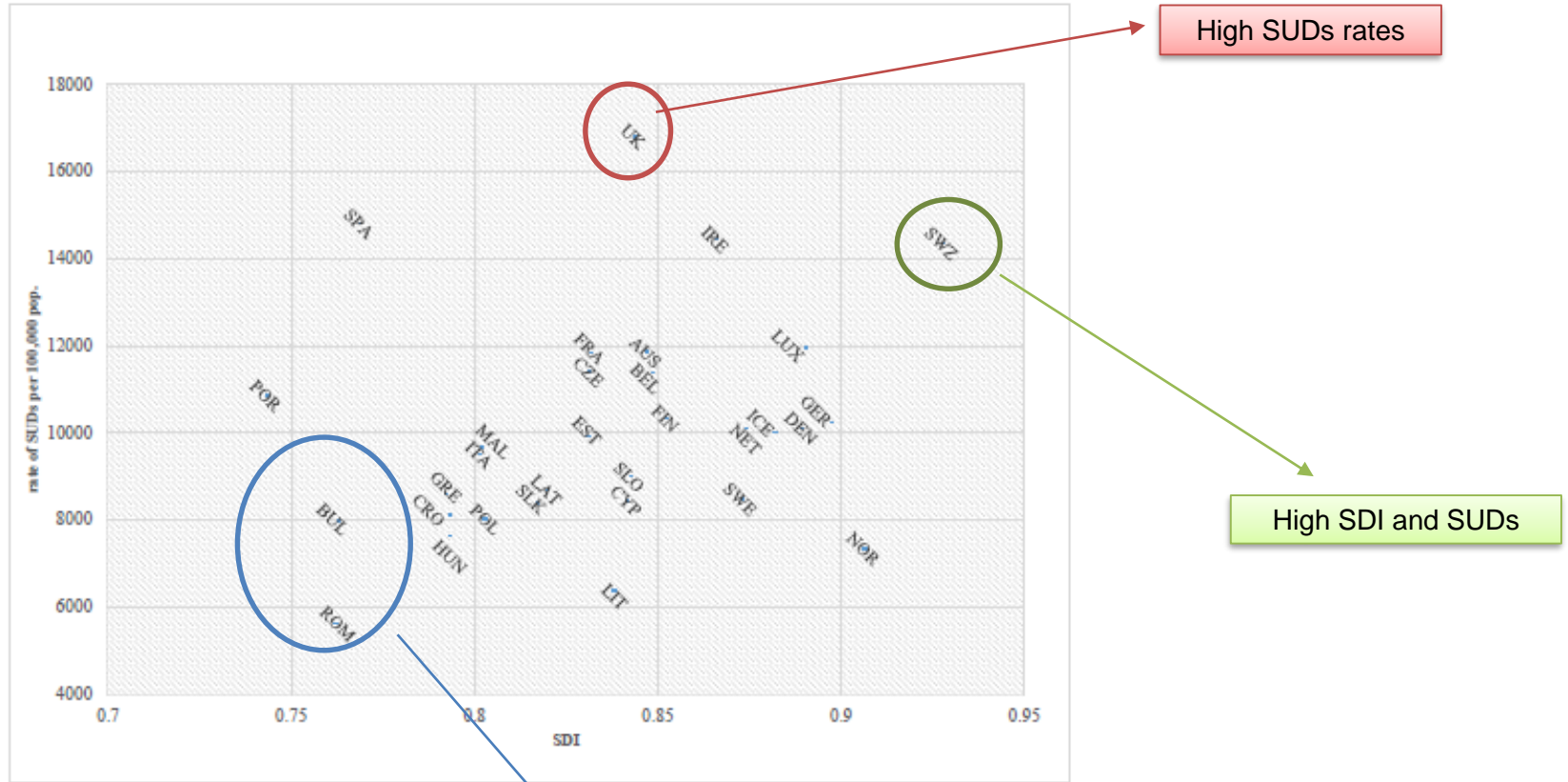
	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Austria	186.4	186.2	184.8	182.6	180.2	178.1	176.1	173.2	169.8	166.5	163.6	161.2	158.7	156.3	153.8	151.1	147.3	142.7	138.3	134.4	131.8	130.5	129.6	128.5	127.2	125.5	121.9	119.3	119.1	119.9
Belgium	170.0	171.6	173.2	174.6	175.5	175.7	175.4	175.0	174.6	174.3	174.2	174.3	174.4	174.6	174.7	174.7	172.6	168.1	162.7	157.9	155.2	154.4	153.9	153.5	152.6	151.2	146.5	141.4	138.6	135.6
Bulgaria	164.1	164.4	164.3	163.5	162.5	161.3	159.8	157.8	155.3	152.4	149.6	146.3	142.1	137.6	133.2	129.3	125.3	120.8	116.3	112.0	108.9	106.7	104.7	102.7	101.1	99.5	97.3	95.5	95.0	95.4
Croatia	163.6	162.5	161.5	160.8	160.3	160.1	159.9	159.1	158.2	157.0	155.6	152.5	147.6	141.9	136.3	131.6	127.6	123.6	119.9	116.8	114.7	113.4	112.6	111.4	109.7	107.4	101.3	96.1	95.5	96.1
Cyprus	59.3	59.3	59.3	59.5	59.7	60.0	60.4	60.9	61.5	62.1	62.6	63.0	63.4	63.7	64.0	64.4	64.9	65.2	65.4	65.6	65.7	65.6	65.4	65.0	64.7	64.4	65.0	65.5	65.1	64.6
Czech Rep	146.4	150.0	153.5	157.0	159.8	161.7	162.0	160.9	158.7	156.3	154.2	152.7	151.5	150.6	150.1	150.3	150.2	149.5	148.5	147.2	145.9	144.7	143.5	142.1	140.4	138.2	135.5	132.6	127.7	120.7
Denmark	124.6	124.8	124.6	124.3	124.2	123.7	122.0	117.8	112.6	107.4	102.6	98.3	94.4	90.7	87.4	84.6	82.0	79.5	77.2	75.3	74.2	73.7	73.2	72.9	72.3	71.5	70.2	69.3	69.5	70.0
Estonia	225.0	222.6	220.2	217.8	215.2	213.0	211.7	211.3	211.3	211.4	211.0	207.7	201.9	195.0	189.2	185.1	181.6	177.4	173.4	168.8	163.9	158.4	152.3	145.7	139.2	133.5	129.1	126.3	124.7	124.6
Finland	266.2	265.8	263.8	261.1	259.9	259.6	259.3	258.7	257.2	254.4	251.4	249.3	248.4	248.9	249.0	248.3	245.5	240.7	235.5	230.8	227.8	226.1	224.7	222.0	218.9	214.6	202.1	190.7	187.9	185.8
France	142.8	142.8	142.7	142.5	142.0	141.1	139.5	136.8	133.7	131.0	129.0	127.4	126.0	124.5	122.8	120.9	118.6	115.7	112.5	109.4	107.0	105.2	103.8	102.3	100.8	98.9	94.1	90.3	90.3	90.8
Germany	128.5	128.6	127.9	126.6	125.2	124.0	122.4	120.5	118.5	116.6	115.2	114.5	113.9	113.4	112.7	112.0	110.1	107.1	104.1	101.5	100.2	100.0	100.3	100.6	100.7	100.6	99.6	98.7	98.7	99.2
Greece	52.9	52.5	52.0	51.6	51.3	51.1	51.0	50.8	50.6	50.3	50.3	50.4	50.7	51.1	51.3	51.4	51.3	51.0	50.6	50.3	50.1	49.9	49.7	49.4	49.0	48.8	50.1	51.5	51.6	51.6
Hungary	155.6	157.8	159.5	160.8	161.9	162.7	161.5	157.4	151.5	145.1	139.8	135.7	131.7	128.1	124.9	122.4	120.5	118.8	117.3	116.0	114.7	113.3	111.7	110.1	108.6	107.1	105.3	103.8	103.2	103.4
Iceland	130.9	130.3	129.8	129.1	128.8	129.0	129.4	128.0	125.0	121.3	118.8	116.0	113.2	111.0	109.1	106.8	104.3	100.9	97.9	95.5	94.1	93.5	93.2	93.1	92.6	92.1	90.9	89.8	89.1	88.6
Ireland	127.5	132.0	136.8	142.1	147.7	153.6	159.5	165.3	171.1	176.5	181.4	185.8	190.3	194.2	196.8	197.5	195.1	189.0	180.7	172.3	165.4	160.3	156.0	152.0	147.2	141.3	125.8	113.7	113.5	114.2
Italy	60.2	61.9	63.3	64.3	65.0	65.2	64.9	64.2	63.2	61.8	60.4	58.4	55.8	53.0	50.3	48.0	46.1	43.9	42.0	40.4	39.5	39.1	38.8	38.6	38.3	37.7	35.7	33.9	34.6	36.9
Latvia	184.5	181.7	178.8	175.6	172.4	169.7	168.0	167.3	167.3	167.7	167.4	165.7	163.1	160.2	157.9	156.2	154.9	152.9	150.4	147.2	144.3	141.4	138.2	134.7	130.6	126.8	121.3	116.4	114.3	114.5
Lithuania	227.8	228.7	230.4	232.2	233.8	235.3	238.8	245.7	253.9	261.5	264.7	263.8	261.6	259.2	257.6	257.5	257.9	257.3	255.3	251.4	247.6	245.0	242.6	239.9	236.1	230.2	216.5	205.3	203.7	207.1
Luxembourg	150.3	149.7	148.6	147.0	144.8	142.5	140.2	137.5	134.6	131.6	128.5	124.8	120.7	116.1	112.2	108.7	105.3	101.4	97.9	95.4	93.8	93.1	92.9	92.8	92.5	92.3	93.1	94.5	94.8	94.9
Malta	53.7	54.1	54.5	55.0	55.6	56.4	57.2	58.3	59.4	60.2	60.7	61.2	62.0	63.2	64.2	64.9	65.0	64.8	64.4	64.1	64.0	64.2	64.3	64.2	63.9	63.6	64.6	65.6	64.5	62.0
Netherlands	116.7	119.0	121.2	123.2	124.7	125.6	126.4	126.9	127.3	127.7	128.0	128.3	128.8	129.2	129.3	129.2	128.9	128.3	127.4	126.1	124.6	122.8	120.6	118.0	115.1	111.9	107.1	102.7	100.2	98.3
Norway	201.8	204.2	205.3	205.2	204.7	203.5	200.2	193.4	185.2	177.1	171.1	167.2	164.2	162.1	160.3	158.6	156.3	153.2	150.0	147.5	145.9	145.5	145.6	145.6	144.5	142.6	135.8	129.7	129.2	129.7
Poland	111.7	113.1	114.5	115.9	117.5	119.2	121.2	123.5	126.0	128.3	130.3	131.8	133.1	134.4	135.5	136.5	137.2	137.5	137.4	137.0	136.6	136.2	135.7	134.9	133.7	132.1	128.0	124.0	122.3	121.3
Portugal	118.3	119.4	120.5	121.3	121.7	122.1	120.7	116.5	110.6	104.5	99.6	95.8	92.1	88.8	85.9	83.2	80.6	77.9	75.4	73.2	71.4	70.2	69.4	68.8	68.1	67.3	65.2	63.5	63.7	64.5
Romania	80.9	81.5	82.1	82.3	82.7	83.1	83.7	84.2	84.5	85.0	85.7	86.8	88.5	90.2	91.9	93.1	93.7	94.1	94.4	94.5	94.4	94.2	93.7	93.2	92.5	91.7	90.1	88.7	88.7	89.5
Slovakia	107.0	107.6	108.3	109.1	109.9	110.5	110.5	110.0	109.2	108.4	107.8	107.4	106.8	106.1	105.8	106.0	106.6	107.1	107.6	107.9	108.0	107.9	107.6	107.2	106.4	105.4	105.1	104.7	103.9	103.6
Slovenia	191.3	193.8	196.4	199.0	201.5	203.6	205.0	205.7	205.4	204.8	204.3	203.4	201.9	200.1	198.0	195.4	191.5	185.7	179.0	172.6	167.1	161.9	156.3	150.6	146.0	143.1	141.5	140.2	138.0	134.4
Spain	67.7	68.5	69.4	70.1	70.9	71.7	71.9	71.4	70.4	69.1	68.0	67.1	66.1	65.0	63.8	62.8	61.5	60.0	58.6	57.3	56.2	55.3	54.4	53.7	53.0	52.3	52.1	52.2	52.1	52.2
Sweden	173.9	175.3	176.0	176.4	176.8	176.1	173.2	168.7	163.3	158.5	155.4	154.2	154.2	155.4	157.3	160.0	163.0	166.1	168.9	171.4	173.1	173.9	173.7	172.4	170.4	167.3	159.6	152.4	150.0	148.4
Switzerland	251.6	249.4	246.6	243.4	240.2	237.3	233.9	230.1	225.8	221.7	218.1	214.8	211.3	208.0	204.4	200.4	195.3	189.0	181.9	174.4	167.4	160.9	153.9	146.6	139.5	133.1	126.0	120.7	118.0	116.0
UK	112.9	113.1	112.8	112.2	111.4	110.3	108.4	105.6	102.8	100.6	99.1	98.0	97.0	96.2	95.1	94.0	92.6	90.6	88.5	86.7	85.6	85.3	85.0	84.7	84.2	83.2	81.1	79.3	78.8	78.6

Red gradations = higher incidence; White gradations = medium incidence; Green gradations = lower incidence

UK United Kingdom

Main results

Supplement Figure 1: Correlation between prevalence of substance use disorders (SUDs) and Socio Demographic Index (SDI), in 31 European countries, year 2019, both sexes, age 10-24

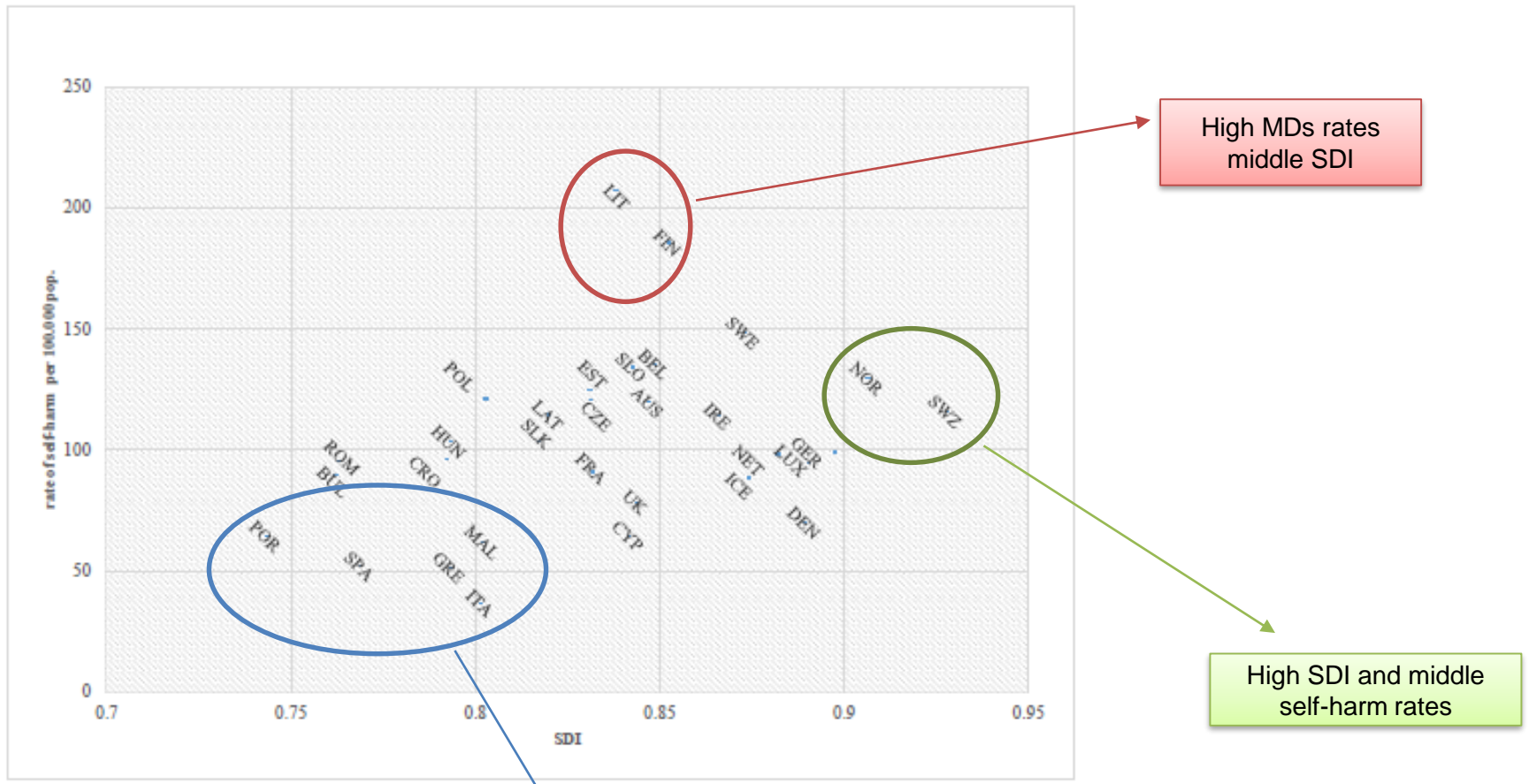


AUS Austria, BEL Belgium, BUL Bulgaria, CRO Croatia, CYP Cyprus, CZE Czech Republic, DEN Denmark, EST Estonia, FIN Finland, FRA France, GER Germany, GRE Greece, HUN Hungary, ICE Iceland, IRE Ireland, ITA Italy, LAT Latvia, LIT Lithuania, LUX Luxembourg, NET Netherlands, NOR Norway, POL Poland, POR Portugal, ROM Romania, SLK Slovakia, SLO Slovenia, SPA Spain, SWE Sweden, SWZ Switzerland, UK United Kingdom

Lower SDI and SUDs rates: Bulgaria and Rumania

Main results

Supplement Figure 2: Correlation between incidence rates of self-harm and Socio Demographic Index (SDI), in 31 European countries, year 2019, both sexes, age 10-24

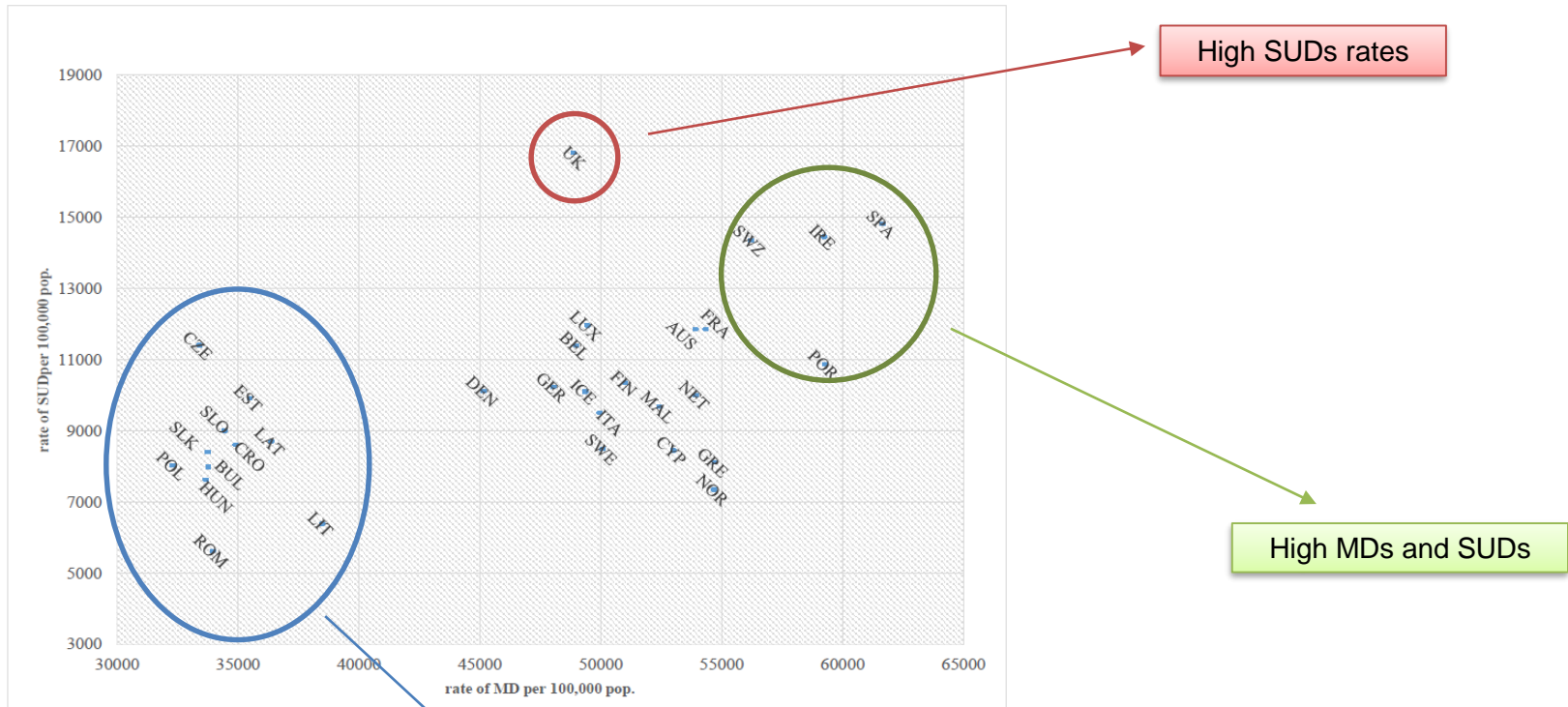


AUS Austria, BEL Belgium, BUL Bulgaria, CRO Croatia, CYP Cyprus, CZE Czech Republic, DEN Denmark, EST Estonia, FIN Finland, FRA France, GER Germany, GRE Greece, HUN Hungary, ICE Iceland, IRE Ireland, ITA Italy, LAT Latvia, LIT Lithuania, LUX Luxembourg, NET Netherlands, NOR Norway, POL Poland, POR Portugal, ROM Romania, SLK Slovakia, SLO Slovenia, SPA Spain, SWE Sweden, SWZ Switzerland, UK United Kingdom

Lower self-harm rates: South Europe, lower SDI

Main results

Supplement Figure 6: Correlation between prevalence rates of substance use disorders (SUDs) and mental disorders (MDs), in 31 European countries, year 2019, both sexes, age 10-24



AUS Austria, BEL Belgium, BUL Bulgaria, CRO Croatia, CYP Cyprus, CZE Czech Republic, DEN Denmark, EST Estonia, FIN Finland, FRA France, GER Germany, GRE Greece, HUN Hungary, ICE Iceland, IRE Ireland, ITA Italy, LAT Latvia, LIT Lithuania, LUX Luxembourg, NET Netherlands, NOR Norway, POL Poland, POR Portugal, ROM Romania, SLK Slovakia, SLO Slovenia, SPA Spain, SWE Sweden, SWZ Switzerland, UK United Kingdom

Lower MDs rates: Central and eastern Europe

Data coverage of mental and substance use disorders and self-harm among young people in Europe

Table 1: Number of data-sources for mental disorders among males and females aged 10-24 per country in the European Union, Iceland, Norway, and Switzerland

Causes	Countries																					Avg									
	AUS	BEL	BUL	CRO	CYP	CZE	DEN	EST	FIN	FRA	GER	GRE	HUN	ICE	IRE	ITA	LAT	LIT	LUX	NET	NOR		POL	POR	ROM	SLO	SVK	SPA	SWE	SWZ	UK
SCZ	0	0	1	0	0	1	6	0	3	3	3	0	0	0	5	0	0	0	0	4	2	0	0	0	0	0	2	6	0	13	1.6
DEP	2	4	1	1	2	2	3	2	5	6	10	5	1	0	5	2	3	0	1	10	10	1	3	1	1	1	10	5	2	14	3.8
BIP	1	0	1	0	0	0	3	0	2	1	4	0	0	1	4	1	0	0	0	3	1	1	1	1	0	0	3	2	0	5	1.2
ANX	1	1	1	0	0	0	1	0	1	1	6	1	0	0	3	1	0	1	0	9	1	0	1	1	0	0	5	0	1	5	1.4
ED	1	1	0	0	0	0	3	0	5	5	6	1	2	0	1	1	0	0	0	5	1	0	3	1	0	0	8	6	2	7	2.0
ASD	0	0	0	0	0	0	8	0	1	2	0	0	0	3	1	0	0	1	0	1	2	0	0	0	0	0	0	6	0	9	1.1
ADHD	1	0	0	0	1	0	1	0	1	1	4	1	1	0	0	1	0	0	1	0	0	0	0	0	0	0	7	2	1	6	1.0
CD	1	0	0	0	0	0	1	0	0	2	1	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	2	0.3
IDID	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0
AUD	1	2	0	2	0	0	0	1	4	2	10	0	0	1	1	0	0	0	0	5	2	1	1	1	0	0	2	17	3	7	2.1
DUD	14	9	11	12	8	20	14	15	15	15	19	15	13	7	18	21	14	14	8	26	13	14	11	9	16	14	38	16	9	56	16.1
SH	1	2	1	2	2	3	2	1	2	1	1	1	1	3	1	1	2	2	2	2	1	2	2	2	2	2	2	2	2	4	1.8
All causes ¹	19	21	16	17	13	26	42	19	36	39	50	22	18	15	35	27	19	17	11	51	30	19	21	16	19	17	69	59	18	111	29.7

¹Number of unique references per country

AUS Austria, BEL Belgium, BUL Bulgaria, CRO Croatia, CYP Cyprus, CZE Czech Republic, DEN Denmark, EST Estonia, FIN Finland, FRA France, GER Germany, GRE Greece, HUN Hungary, ICE Iceland, IRE Ireland, ITA Italy, LAT Latvia, LIT Lithuania, LUX Luxembourg, NET Netherlands, NOR Norway, POL Poland, POR Portugal, ROM Romania, SVK Slovakia, SLO Slovenia, SPA Spain, SWE Sweden, SWZ Switzerland, UK United Kingdom

Avg Average

Causes: SCZ Schizophrenia, DEP Depressive disorders, BIP Bipolar disorder, ED Eating disorders, ASD Autism spectrum disorders, ADHD Attention deficit hyperactivity disorders, CD Conduct disorders, IDID Idiopathic developmental intellectual disability, AUD Alcohol use disorder, DUD Drug use disorders, SH Self-harm

- There is still a lack of prevalence data on mental disorders among young people in Europe, in particular from countries in central and eastern Europe.
- Data is very scarce for the age-group 10 to 14 years

Discussion

Mental disorders

- **Increase in eating disorders:** uncertain to what extent these increasing rates were due a true rise in prevalence rather than changes in diagnostic practices or improved detection, it has been suggested that many individuals suffering from eating disorders still remain untreated in Europe.
- **ADHD showed a 66% increase in prevalence from 1990.** Although this may also be indication of an improvement in the detection of ADHD cases, care for this disorder should be enhanced, given that more than 60% of children diagnosed with ADHD have symptoms as adults
- **30% decrease of IDID, in terms of both prevalence and disability,** which reflects the decrease in occurrence of intellectual disability observed in children under 5 years from 1990 to 2016 in Europe, probably related to an improvement in early detection and interventions among prematurely-born children

Discussion

Substance use disorders

Central and Eastern Europe had the highest alcohol and drug attributable burdens, but a decreasing trend of alcohol use disorders in these countries was observed during the study period.



Implementation of evidence based public health policies, such as:

- limiting the accessibility to alcohol by raising the minimum legal age for drinking
- increasing prices
- regulating advertisement in the media.

There is still a high heterogeneity in policy measures, and countries with higher SDI have a greater burden

Discussion

Self-harm

Drop in incidence and YLLs, in line with the one-third decrease in suicide rates between 2000 and 2017, previously described (OECD)



positive effect of suicide prevention strategies or an improvement of health of the population, as well as an enhancement in help seeking and service availability for adolescents.

High differences among countries suggest that self-harm is due to a complex interplay of specific factors related to each country, including social, economic, and cultural factors, and a different distribution of MDs and SUDs

Limitations

- **General limitations of GBD studies**, such as uncertainties in the determination and classification of non-fatal disorders, deriving from different data sources, and the uncertainty of some estimates, reflected by the wideness of the 95% UIs among certain disorders.
- **Underestimation of the true effect of mental disorders due to the fact that self-harm is coded in GBD under injuries, while it is largely linked to MDs and SUDs.** Self-harm was included in our analyses, although it was not possible to calculate the attributable burden of suicide, which could have increased the overall burden of MDs and SUDs

Limitations

- **Estimates on personality disorders are included in the broad group of other MDs**, due to limited informing prevalence estimates. It would be suitable to include them in future GBD estimates, given a lifetime prevalence of personality disorder in EU of more than four million people.
- **SDI was chosen as a summary measure of a geography's socio-demographic development**, while more precise measures could be used, such as the Index of Multiple Deprivation (IMD), which includes several domains.

Key findings

1. Description of the burden of mental conditions (i.e. MDs, SUDs and self-harm) in young people living in Europe, covering a 30-year period during which Europe faced profound political, social and demographic changes.
2. Provision of an overview of data sources used for epidemiological analyses.
3. Variations in the prevalence of MDs and SUDs between 31 European countries, showing a **lower burden of MDs in central and eastern Europe.**
4. Overall, the **greatest burden is due to anxiety and depression.**

Key findings

1. Changes in burden since 1990, with an **increased burden due to disability from eating disorders and drug use disorders**, and a **decrease of idiopathic developmental intellectual disability, and alcohol use disorders**.
2. The **burden of self-harm** also **decreased**.
3. The **burden of SUDs and self harm is higher in countries with lower development status** as measured by the sociodemographic index (SDI).
4. **MDs are positively associated with SUDs**.

Conclusions

This comprehensive assessment from 1990 to 2019 highlights that mental conditions **still represent a major health burden in Europe**, especially in terms of disability, but also in terms of premature deaths.

As all these conditions often predict same or worsen conditions in adulthood, and as the estimated direct and indirect costs of these disorders are higher than those of chronic somatic diseases, our findings emphasise the **need for policy to strengthen mental health prevention and scaling up the quality of health services** in future years, **with a specific focus on young people.**

Conclusions

The reported country-specific estimates of the burden and changes over time may be used by stakeholders for **directing health planning**.

They also may serve as a baseline measure of the burden of mental conditions among young people in Europe, as an important **point of reference when the full public health impact of the COVID-19 pandemic is assessed**.

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