Mental Health Disorder (MHD) Prevalence Trends in Germany: A Longitudinal Analysis

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Objectives

The burden of mental health disorders (MHDs) is believed to be substantial and increasing, but robust data on real-life diagnosis trends are rare.

The objective of the present analysis was to explore changes in the administrative 12-months prevalence rates of MHDs from 2003 to 2009 in the region of Nordbaden, Germany.

Source of Data

The comprehensive claims database of the organization of physicians registered with statutory health insurance (SHI) (*Kassenärztliche Vereinigung*, KV) in Nordbaden covers the total regional population enrolled in SHI (>2.2 million).

The complete administrative dataset for years 2003 to 2009 was restructured to enable patient-centered analyses.

Methods

We analyzed trends in prevalence rates (overall, as well as for defined diagnosis clusters by [gender and] age group) for the seven-year period from from 2003 to 2009. Linear trend analyses were performed using regression analysis with the growth index of the prevalence rates of MHDs as dependent variable.

We considered a trend as **relevant** when the prevalence rate exceeded 0.5 percent[1] and the determination coefficient was larger than 0.57 ($R^2 > 0.57$), since a coefficient of correlation $R > 0.75$ corresponds to a statistical level of significance with $p < 0.05$ given seven observation points.[2]

[1]A cut-off rate of 0.5% translates into a minimum of 556 patients in the age group <6 years and 3,010 in the age group 45-65 years;
[2]cf. J. Schira (2012) and O. Schwarz (2009)

Diagnosis Clusters

Definitions and Prevalence Rates by Cluster and Year:

Cluster		2003	2004	2005	2006	2007	2008	2009
1	F00-F03	1.53%	1.67%	1.91%	2.01%	2.54%	2.35%	2.01%
2	F04-F09	1.72%	1.61%	1.62%	1.64%	1.96%	1.77%	1.49%
3	F1X	3.64%	3.78%	4.03%	4.52%	5.71%	5.86%	5.50%
4	F20-F29	1.14%	1.18%	1.22%	1.27%	1.59%	1.53%	1.27%
5	F30-F39	10.72%	10.90%	10.98%	11.49%	13.81%	13.27%	12.51%
6	F42-48	12.19%	12.19%	12.10%	12.63%	14.11%	13.37%	14.22%
7	F50-F59	3.10%	2.93%	2.79%	2.92%	3.24%	3.30%	3.20%
8	F60-F69	1.53%	1.53%	1.57%	1.69%	1.92%	1.99%	1.78%
9	F70-F79	0.45%	0.47%	0.49%	0.50%	0.65%	0.57%	0.50%
10	F80-F89	3.36%	3.55%	3.34%	3.46%	2.67%	2.68%	2.62%
11	F90-F92	1.10%	1.15%	1.18%	1.32%	1.39%	1.58%	1.46%
12	F93.0 , F93.1	4.15%	4.12%	4.23%	4.50%	5.22%	5.35%	5.15%
13	F93.3, F93.8,	1.99%	1.77%	1.68%	1.70%	1.75%	1.76%	1.66%
	Total	31.20%	30.98%	30.74%	32.15%	36.73%	34.21%	33.61%

Cluster definitions: 1 (ICD-10 codes F00-F03), dementias; 2, misc. brain dysfunctions; 3, mental and behavioral disorders due to substance use (tobacco, alcohol, cannabinoids, …); 4, schizophrenia, schizotypical and delusional disorders; 5, mood and affective disorders (incl. bipolar and depressive disorders); 6, obsessive-compulsive, adjustment and somatoform disorders; 7, eating disorders and sexual dys-function; 8, personality disorders; 9, mental retardation; 10, development disorders; 11, hyperkinetic, conduct and phobic / anxiety disorders; 12, phobic anxiety disorders; 13, other childhood emotional disorders; for details, please refer to the ICD-10 classification system. Note that prevalence patterns are age [and gender] dependent.

Relevant MHD Diagnosis Trends by Age Group

Age Group ≤5 Years:

Cluster	Prevalence	Growth Rate	Trend
F42-48	2.28%	-2.34%	Yes
F50-F59	3.05%	-11.20%	Yes
F60-F69	1.00%	-7.38%	Yes
F80-F89	29.56%	-8.99%	Yes
F90-F92	2.78%	-2.18%	Yes
F93.0 , F93.1, F93.2, F40, F41	1.21%	-5.06%	Yes
F93.3, F93.9, F93.9, F94-F99	4.03%	-6.81%	Yes

Definitions:

Prevalence: average prevalence rate 2003 – 2009; cut-off 0.5% (i.e., only **clusters** with a diagnosis rate >0.5% are shown)
Growth rate: compound average growth rate 2003 – 2009
Trend: yes, if p<0.05 or $R^2 > 0.57$

Age Group 6-12 Years:

Cluster	Prevalence	Growth Rate	Trend
F30-F39	0.89%	-0.10%	No
F42-48	4.56%	0.12%	No
F50-F59	1.51%	-2.34%	Yes
F60-F69	1.51%	-5.40%	Yes
F70-F79	0.90%	-5.07%	Yes
F80-F89	15.48%	-0.24%	No
F90-F92	8.70%	4.06%	Yes
F93.0 , F93.1, F93.2, F40, F41	2.12%	2.76%	No
F93.3, F93.9, F93.9, F94-F99	7.11%	-0.43%	No

Age Group 13-17 Years:

Cluster	Prevalence	Growth Rate	Trend
F1X	1.16%	-3.10%	No
F30-F39	1.77%	2.76%	No
F42-48	5.83%	3.12%	Yes
F50-F59	1.43%	-1.48%	No
F60-F69	1.64%	-0.05%	No
F70-F79	0.67%	3.00%	No
F80-F89	4.27%	2.95%	No
F90-F92	4.47%	9.71%	Yes
F93.0 , F93.1, F93.2, F40, F41	2.02%	4.20%	Yes
F93.3, F93.9, F93.9, F94-F99	2.88%	3.97%	Yes

Age Group 18-24 Years:

Cluster	Prevalence	Growth Rate	Trend
F1X	3.54%	4.79%	Yes
F20-F29	0.66%	-0.72%	No
F30-F39	4.99%	3.41%	Yes
F42-48	10.75%	2.46%	Yes
F50-F59	2.21%	-1.61%	No
F60-F69	1.86%	3.43%	Yes
F70-F79	0.56%	6.25%	Yes
F80-F89	0.80%	14.12%	Yes
F90-F92	0.85%	18.67%	Yes
F93.0 , F93.1, F93.2, F40, F41	3.54%	2.66%	Yes
F93.3, F93.9, F93.9, F94-F99	1.10%	-0.02%	No

Age Group 25-34 Years:

Cluster	Prevalence	Growth Rate	Trend
F1X	4.26%	5.64%	Yes
F20-F29	1.16%	0.92%	No
F30-F39	8.26%	3.00%	Yes
F42-48	14.18%	1.24%	No
F50-F59	2.52%	-0.63%	No
F60-F69	2.07%	3.08%	Yes
F93.0 , F93.1, F93.2, F40, F41	5.31%	2.05%	Yes
F93.3, F93.9, F93.9, F94-F99	1.09%	-5.14%	No

General observations:

Age Group 35-44 Years:

Cluster	Prevalence	Growth Rate	Trend
F04-F09	0.58%	-5.73%	No
F1X	5.58%	2.88%	Yes
F20-F29	1.54%	-1.95%	No
F30-F39	11.11%	1.01%	No
F42-48	15.74%	-0.51%	No
F50-F59	2.44%	-1.89%	No
F60-F69	2.06%	1.16%	No
F93.0 , F93.1, F93.2, F40, F41	5.51%	1.15%	No
F93.3, F93.9, F93.9, F94-F99	1.11%	-8.21%	No

Age Group 45-64 Years:

Cluster	Prevalence	Growth Rate	Trend
F04-F09	1.16%	-0.68%	No
F1X	7.89%	8.41%	Yes
F20-F29	1.83%	3.30%	No
F30-F39	17.22%	3.04%	Yes
F42-48	17.32%	3.58%	Yes
F50-F59	3.90%	1.60%	No
F60-F69	1.89%	6.14%	Yes
F70-F79	0.54%	7.81%	Yes
F93.0 , F93.1, F93.2, F40, F41	6.11%	4.67%	Yes
F93.3, F93.9, F93.9, F94-F99	1.13%	-4.85%	No

Age Group ≥65 Years:

Cluster	Prevalence	Growth Rate	Trend
F00-F03	9.07%	5.32%	No
F04-F09	5.90%	-1.88%	No
F1X	4.60%	11.20%	No
F20-F29	1.95%	2.98%	No
F30-F39	20.76%	2.65%	No
F42-48	13.22%	5.17%	Yes
F50-F59	4.20%	4.35%	Yes
F60-F69	1.23%	2.87%	Yes
F93.0 , F93.1, F93.2, F40, F41	4.83%	6.14%	Yes
F93.3, F93.9, F93.9, F94-F99	0.96%	-2.64%	No

Overall, MHD diagnoses remained stable at rates between 31% and 37% during the observation period. Most frequently diagnosed mental health problems in 2009 were depressive episodes, with an overall administrative 12-months prevalence rate of 8.3%; unspecified somatoform disorders, 4.8%; harmful use of tobacco, 3.4%; neurasthenia, 2.3%; and adjustment disorders, 2.2%. **Specifically**, from 2003 to 2009, the administrative prevalence of ADHD increased by 79% (from 0.53% in 2003 to 0.95% overall; 6-12 years, 8.0%; 13-17 years, 4.2%; adults from 0.04% in 2003 to 0.17% in 2009). Notable prevalence increases were also found for dementia (significant for males only) and for disorders due to substance abuse (both genders). For detailed gender-specific analyses, please contact the authors.

Summary and Conclusion

The overall prevalence of MHDs (33.6% in 2009; males, 27.6%; females, 38.9%) did not increase during the observation period, i.e., in Nordbaden from 2003 to 2009. Growing numbers for some disorders were compensated for by decreases of others. Summing up, our findings do not support the widely held belief that the burden of disease due to MHDs has increased dramatically.

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