Supplementary material

Methods

Participants

The survey used the random landline sample of German market and social research institutes „eASYSAMPLe" with a Gabler-Haeder-Design (Gabler, Häder & Hoffmeyer-Zlotnik, 1998). Registered and generated numbers were selected across Germany in proportion to regional resident structure and stratified by size categories of local communities. Participants within the household were selected according to the Kish grid procedure (Kish, 1949).

Causal beliefs

The Kaiser-Meyer-Olkin measure of sampling adequacy for all items was 0.84, making the scale eligible for factor analysis. We entered all items into an exploratory principal-component factor analysis, yielding four factors with an Eigenvalue >1 and a cumulative explanation of variance of 51.3 % when analyzing the scree plot. We performed varimax rotation of the factors, resulting in four uncorrelated factor scores with the following factor loadings (specified here if loading >0.3): *"Family and childhood"* ("Broken home", 0.81; "Lack of parental affection", 0.73; "Poor parenting", 0.64; "Childhood sexual abuse ", 0.64; Eigenvalue 4.51), *"Current stress"* ("Pressure to perform", 0.75; "School / Work-related stress", 0.71; "Unconscious conflict", 0.62; "Problems with parents or friends / partner or family", 0.57; "Insufficient self-control ", 0.25; Eigenvalue 2.05), *"Biogenetic"* ("Brain disease", 0.82; "Chemical imbalance of the brain", 0.75; "Heredity", 0.62; Eigenvalue 1.54) and *"Environment and diet"* ("Poor diet", 0.81; "Environmental pollution", 0.69; "Vitamin deficiency", 0.67; Eigenvalue 1.14). Three causal beliefs loaded on more than one factor score: "Too much TV or internet" (*"Family and childhood"*, 0.46; *"Environment and diet"*, 0.40), "Stressful life event" (*"Family and childhood"*, 0.47; *"Current stress"*, 0.42) and "Drug abuse" (*"Family and childhood"*, 0.44; *"Biogenetic"*, 0.37).

Statistics

The weight was calculated accounting for household size (higher non-response in single households), study design (selection bias in multiperson households) and the German general population using data from the German microzensus 2016. The population weight was calculated using iterative proportional fitting for gender (2 stages), age (7 stages), education4 stages) and place of residence (16 stages).

Supplementary references

Gabler S, Häder S, Hoffmeyer-Zlotnik JHP (eds.). Telefonstichproben in Deutschland. Wiesbaden: VS Verlag für Sozialwissenschaften; 1998.

Kish L. A Procedure for Objective Respondent Selection within the Household. J Am Stat Assoc 1949;44(247):380–7.

Supplementary table 1

Socio-demographic characteristics of the population sample.

	Total population (%)	Survey 2017 (%) (n=1008)
Gender [a]		
Men	49.3	46.6
Women	50.7	53.4
Age [a]		
18-24	9.2	6.0
25-39	22.5	15.6
40-59	35.6	34.0
60-64	7.6	12.2
>64	25.1	32.2
Education [b]		
Unknown/pupil	3.8	1.5
No schooling completed	3.7	0.9
9 years of schooling	32.9	16.5
10 years of schooling	29.4	28.9
12/13 years of schooling	29.5	52.3

[a] Data from the Statistical Office Germany 2015

[b] Data from the German microzensus 2015 >= only available for participants 15 years

Supplementary table 2

Associations between help-seeking or treatment recommendations, identification as mental illness or perception of ADHD and causal beliefs.

	Family and childhood		Current stress		Biogenetic		Environment and diet		Model fit	
	ADHD Child	ADHD Adult	ADHD Child	ADHD Adult	ADHD Child	ADHD Adult	ADHD Child	ADHD Adult	ADHD Child	ADHD Adult
	OR p-value (95% CI)	OR p-value (95% CI)	OR p-value (95% CI)	OR p-value (95% CI)	OR p-value (95% CI)	OR p-value (95% CI)	OR p-value (95% CI)	OR p-value (95% CI)	*Pseudo-R² p-value*	*Pseudo-R² p-value*
Help-seeking										
Psychotherapist	0.87 p=0.30 (0.67 – 1.13)	1.23 p=0.17 (0.92 – 1.65)	1.30 p=0.06 (0.99 – 1.73)	**1.58 p=0.003 (1.18 – 2.13)**	**1.76 p=0.001 (1.27 – 2.44)**	**1.44 p=0.033 (1.03 – 2.00)**	1.01 p=0.97 (0.76 – 1.33)	1.02 p=0.90 (0.77 – 1.36)	*0.045 p=0.008*	*0.068 p=0.031*
Educational psychologist	1.16 p=0.25 (0.90 – 1.51)	-	**1.50 p=0.011 (1.10 – 2.05)**	-	1.04 p=0.77 (0.78 – 1.39)	-	1.15 p=0.20 (0.91 – 1.46)	**-**	*0.028 p=0.048*	
Take a cure	-	1.26 p=0.11 (0.95 – 1.66)	-	**1.94 p<0.001 (1.37 – 2.75)**	-	1.05 p=0.75 (0.77 – 1.44)	-	**1.69 p<0.001 (1.27 – 2.25)**		*0.072 p<0.001*
Psychiatrist	1.00 p=1.00 (0.73 – 1.37)	1.28 p=0.09 (0.96 – 1.73)	1.22 p=0.19 (0.91 – 1.64)	1.23 p=0.18 (0.90 – 1.70)	**1.98 p<0.001 (1.44 – 2.73)**	1.12 p=0.50 (0.81 – 1.55)	0.83 p=0.22 (0.61 – 1.12)	0.99 p=0.96 (0.77 – 1.28)	*0.047 p<0.0001*	*0.018 p=0.018*
General practitioner	0.97 p=0.82 (0.73 – 1.29)	1.20 p=0.24 (0.89 – 1.61)	1.07 p=0.63 (0.80 – 1.43)	**1.53 p=0.007 (1.13 – 2.09)**	1.45 p=0.009 (1.10 – 1.90)	1.40 p=0.045 (1.01 – 1.95)	1.24 p=0.08 (0.97 – 1.58)	1.12 p=0.37 (0.87 – 1.45)	*0.022 p=0.056*	*0.041 p=0.01*
Psychiatric hospital	1.23 p=0.22 (0.88 – 1.70)	1.22 p=0.18 (0.91 – 1.65)	1.07 p=0.68 (0.77 – 1.49)	1.29 p=0.06 (0.99 – 1.67)	**1.82 p<0.001 (1.35 – 2.44)**	1.26 p=0.15 (0.92 – 1.71)	1.11 p=0.42 (0.86 – 1.45)	1.00 p=0.98 (0.74 – 1.37)	*0.049 p<0.001*	*0.047 p=0.003*
Pharmacy	1.00 p=0.98 (0.73 – 1.36)	1.30 p=0.08 (0.97 – 1.75)	1.47 p=0.050 (1.00 – 2.16)	1.19 p=0.21 (0.91 – 1.57)	1.33 p=0.06 (0.99 – 1.79)	1.20 p=0.36 (0.82 – 1.76)	1.03 p=0.87 (0.74 – 1.43)	1.57 p=0.016 (1.09 – 2.26)	*0.053 p=0.021*	*0.035 p=0.058*
Treatment										
Concentration and memory training	0.77 p=0.047 (0.60 – 0.99)	0.99 p=0.97 (0.77 – 1.29)	1.12 p=0.49 (0.82 – 1.52)	**1.27 p=0.031 (1.02 – 1.57)**	1.29 p=0.06 (0.99 – 1.70)	1.24 p=0.22 (0.88 – 1.74)	1.17 p=0.28 (0.88 – 1.54)	1.24 p=0.14 (0.93 – 1.65)	*0.033 p=0.013*	*0.035 p=0.003*
Psychotherapy	0.92 p=0.46 (0.72 – 1.16)	1.16 p=0.35 (0.85 – 1.57)	1.02 p=0.88 (0.76 – 1.38)	**1.51 p=0.002 (1.17 – 1.95)**	1.47 p=0.014 (1.08 – 2.00)	**1.48 p=0.003 (1.15 – 1.90)**	0.87 p=0.22 (0.69 – 1.09)	0.92 p=0.49 (0.72 – 1.17)	*0.023 p=0.041*	*0.064 p<0.001*
Autogenic training	1.13 p=0.35 (0.88 – 1.44)	1.09 p=0.50 (0.85 – 1.38)	1.28 p=0.07 (0.98 – 1.66)	1.22 p=0.24 (0.87 – 1.72)	1.30 p=0.07 (0.98 – 1.73)	1.17 p=0.36 (0.84 – 1.63)	**1.58 p<0.001 (1.23 – 2.03)**	1.07 p=0.60 (0.84 – 1.36)	*0.047 p=0.001*	*0.018 p=0.248*
Homeopathic remedies	1.07 p=0.66 (0.80 – 1.42)	0.95 p=0.70 (0.75 – 1.22)	1.09 p=0.61 (0.78 – 1.52)	**1.60 p=0.002 (1.19 – 2.17)**	1.20 p=0.25 (0.88 – 1.62)	1.02 p=0.89 (0.77 – 1.36)	**1.52 p=0.003 (1.15 – 1.09)**	1.16 p=0.31 (0.87 – 1.53)	*0.038 p<0.001*	*0.036 p=0.005*
Stimulants like Ritalin®	**0.64 p=0.017 (0.44 – 0.92)**	1.09 p=0.58 (0.80 – 1.48)	0.80 p=0.19 (0.57 – 1.12)	0.94 p=0.62 (0.72 – 1.22)	1.32 p=0.18 (0.88 – 1.99)	1.34 p=0.057 (0.99 – 1.82)	0.98 p=0.90 (0.72 – 1.34)	0.90 p=0.49 (0.67 – 1.21)	*0.036 p=0.041*	*0.014 p=0.458*
Sedatives like Valium® or Faustan®	1.37 p=0.055 (0.99 – 1.88)	1.40 p=0.061 (0.99 – 1.98)	1.04 p=0.85 (0.73 – 1.47)	1.27 p=0.09 (0.97 – 1.67)	**1.66 p=0.003 (1.19 – 2.31)**	1.13 p=0.52 (0.78 – 1.62)	0.79 p=0.23 (0.55 – 1.15)	1.26 p=0.15 (0.92 – 1.72)	*0.062 p=0.028*	*0.023 p=0.376*
Illness recognition and perception of ADHD										
Robert / Anna has a mental illness	1.05 p=0.73 (0.79 – 1.39)	1.35 p=0.035 (1.02 – 1.78)	0.98 p=0.93 (0.72 – 1.34)	**1.53 p=0.004 (1.15 – 2.04)**	**1.75 p<0.001 (1.32 – 2.32)**	**1.45 p=0.021 (1.06 – 1.99)**	0.94 p=0.69 (0.70 – 1.26)	0.92 p=0.60 (0.68 – 1.25)	*0.071 p=0.005*	*0.082 p=0.004*
ADHD is a real disorder	0.83 p=0.24 (0.61 – 1.13)	0.85 p=0.35 (0.61 – 1.19)	1.01 p=0.93 (0.74 – 1.39)	0.88 p=0.42 (0.65 – 1.19)	**2.39 p<0.001 (1.77 – 3.22)**	1.31 p=0.18 (0.88 – 1.93)	**0.65 p=0.014 (0.46 – 0.92)**	0.96 p=0.82 (0.70 – 1.33)	*0.136 p<0.001*	*0.019 p=0.726*

Values are odds ratios (OR) with corresponding 95%-Confidence intervals (CI) from weighted ordered (recommendations) and simple (Illness recognition and perception of ADHD) logistic regression models with causal belief factor scores as exposure, controlled for age, gender and education. Statistically significant findings based on a significant regression model that were reproduced in the sensitivity analysis are highlighted. One regression model was run for each outcome. N= 369 – 403 observations before imputation; 420 – 472 observations after imputation.