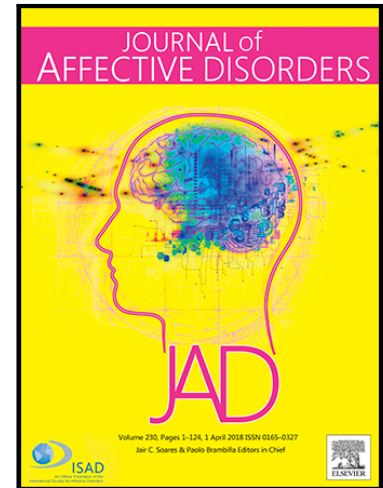


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Psychiatry: a discipline at specific risk of mental health issues and addictive behavior? Results from the national BOURBON study.

Fond G , Bourbon A , Micoulaud-Franchi J-A , Auquier P ,
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Highlights

- a national sample of 2165 interns (302 interns in psychiatry and 1863 in other specialties) were included in the present study
- interns in psychiatry were found to have increased rates of tobacco smoking, cannabis use disorder, alcohol use disorder, increased rates of antidepressant and anxiolytic consumption, increased psychotherapeutic follow-up and decreased self-reported vitality.
- They reported to have been more frequently exposed to sexual and physical assault during their medical studies.
- They reported also to have more frequently experienced illicit drugs during their medical studies, and to seek more frequently anxiolytic and/or sedative and/or stimulant and/or disinhibiting effect, and to seek dealing with sentimental breakthrough.

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Psychiatry: a discipline at specific risk of mental health issues and addictive behavior? Results from the national BOURBON study.

Running title: mental health of interns in psychiatry

Fond G^a, MD PhD, Bourbon^a A, MD, Micoulaud-Franchi J-A^b, MD PhD, Auquier P^a, MD PhD, Boyer L^a, MD PhD, Lançon C^a, MD PhD

^a Aix-Marseille Univ, Faculté de Médecine - Secteur Timone, EA 3279: CERESS - Centre d'Etude et de Recherche sur les Services de Santé et la Qualité de vie, 27 Boulevard Jean Moulin, 13005 Marseille, France

^b USR 3413, Centre National de la Recherche Scientifique, Sommeil, Addiction, et Neuropsychiatrie, Université de Bordeaux, Bordeaux, France.

*** Correspondence should be sent to: Dr Guillaume FOND**

Aix-Marseille Univ, Faculté de Médecine - Secteur Timone, EA 3279: CERESS - Centre d'Etude et de Recherche sur les Services de Santé et la Qualité de vie, 27 Boulevard Jean Moulin, 13005 Marseille, France

Tel: (33 6 68 10 22 58), e-mail: guillaume.fond@ap-hm.fr

Abstract

Background. Physicians are at risk for burnout, anxiety and depression.

Objective. To explore the self-reported mental health status, substance use behavior and motives of a national sample of interns in psychiatry compared to other specialties.

Methods. Interns of the 35 French Medicine faculties were recruited through mailing lists and social networks between December 2016 and May 2018 and fulfilled internet anonymised questionnaires.

Results. Overall, 2165 interns (302 interns in psychiatry and 1863 in other specialties) mean aged 25.9 years (+/-2.8), 35% males were included in the present study. In multivariate analyses, interns in psychiatry were found to have higher rates of current tobacco smoking (aOR=1.9 [1.4-2.5], p<0.001), alcohol use disorder (aOR=1.5 [1.2-2.0], p=0.001), cannabis use disorder (aOR=2.7 [1.8-4.2], p<0.001). They were more frequently followed by a psychiatrist and/ or a psychologist (aOR=2.5 [1.9-3.3], p<0.001), they consumed more often antidepressants (aOR=3.8 [2.2-6.6], p<0.001) and anxiolytic (aOR=1.8 [1.2-2.8]; p=0.006). They reported to have been more frequently exposed to sexual assault (aOR=2.2 [1.1-4.8], p=0.04) and physical assault (aOR=1.9 [1.3-2.9], p=0.002), and to have lower vitality ($\beta = 3.5$ [0.6-6.4], p=0.02). Interns in psychiatry reported to have more often experienced ecstasy (aOR=1.6 [1.2-2.3], p=0.004), mushrooms (aOR=1.5 [1.1-2.2], p=0.04), amphetamines (aOR=1.9 [1.2-3.1], p=0.009) and LSD (aOR=1.8 [1.1-3.1], p=0.04). Beyond classical motives for this consumption (party, group effect), interns in psychiatry reported to seek more frequently disinhibition (aOR=1.7 [1.3-2.2], p<0.001), dealing with anxiety (aOR=1.7 [1.3-2.3], p=0.001), and to seek both stimulant (aOR=1.4 [1.1-1.9], p=0.04) and sedative effects (aOR=1.9 [1.3-2.7], p=0.001).

Conclusions. Interns in psychiatry are more exposed to violence during medical studies, they report lower vitality and increased substance use behavior. Their motives for consumption suggest mental health problems associated with increased engagement in psychotherapy and self-medication of antidepressant/anxiolytic. This population should be targeted as a specific vulnerable population among interns in medicine to prevent ulterior bad health outcomes.

Conflicts of interest: none declared.

Keywords: interns, mental health, tobacco, alcohol, cannabis

Introduction

Previous studies have suggested that medical students experience high rates of depression and suicidal ideation ¹. The percentage of medical students screening positive for depression who sought psychiatric treatment was 15.7% in a recent meta-analysis ². Depression is often associated with addictive behavior. A recent study has found an increase of binge drinking in medical students ³. Reliable estimates of mental health and addictive behavior prevalence during medical training are important to inform, prevent, treat, and identify causes of emotional distress among medical students ⁴, especially in light of recent work revealing a high prevalence of depression in resident physicians ⁵. Improving physicians health may also improve the quality of healthcare for patients. Depression and addictive behavior are mostly taken in charge by psychiatrists in medical care. However, no study has explored to date if young psychiatrists themselves are exposed to specific mental health and addictive behavior issues. Interns in psychiatry may be at particular risk for these disorders because of new responsibilities, increased worked hours, frequent night shifts, exposure to aggressiveness associated with patients' mental illness, low income, professional relocation, all of the above potentially leading to an increased risk of burnout.

The objective of the present study was to determine if interns in psychiatry were exposed at a particular risk of mental health issues or addictive behavior compared to interns of other medical specialties.

Population and methods

Study design

Our methodology was inspired from previous studies on psychostimulant use in medical students ^{6,7}. This study was a descriptive cross-sectional observational epidemiological study.

Study population

Interns were recruited in the 35 universities of medicine in metropolitan France. The survey was sent through faculty administration mailing lists for seventeen of them, social networks for two of them. Overall, 5 universities had refused to send the survey to their students. Students were also contacted through friends and colleagues, who shared the survey by social networks. At the end, all the 35 universities were represented in the present study.

Data collected

Data was collected by a self-reported questionnaire between December 13, 2016 and May 15, 2017. All interns inscribed at a medical faculty during the year 2016-2017 were included in the present study. The interns were interviewed through an online, anonymous questionnaire via the Google Forms software. Completing the questionnaire took an average of 15 minutes. The questionnaire included:

- at least 23 questions for students who did not consume any substance.
- a maximum of 140 questions for students who, by their positive answers concerning mental health and addictive use disorder, completed the longer version of the questionnaire.

Sociodemographic data was recorded (age, sex, having children) as well as the number of weekly worked hours. The self-reported quality of life was assessed using the SF12-v2 quality of life score with 8 subscores (Physical Functioning, Role Physical, Bodily Pain, General Health, Vitality, Social Functioning, Role Emotionnal, Mental Health)⁸. Scores tending towards 100 indicated a better quality of life. The alcohol use disorder was defined by the Alcohol Use Disorder Identification Test (AUDIT) score ≥ 7 for men and 6 for women⁹. Cannabis use disorder was defined by a Cannabis Abuse Screening Test (CAST) score ≥ 2 ¹⁰. Current daily tobacco smoking was self-declared. The following psychiatric variables were reported: currently followed by psychiatrist and/or psychologist, antidepressant, anxiolytic, hypnotic, mood-stabilizers, antipsychotics daily consumption. The regular or occasional consumption of ecstasy, cocaine, mushrooms, amphetamine, LSD, heroine, ketamine during the medical studies was reported. Survey questions about motives for use of psychostimulants were not mutually exclusive (i.e., students could report more than one reason). The motives for consumption were reported in table 1.

Ethical concerns

An email was sent to postgraduate medical students using the database of French medicine student associations, as well as professional mailing lists and posted its content on specialized Internet forums. This email invited potential subjects to participate. It described and explained the rationale of the study, as well as its goals. They were invited to self-administer a confidential Web survey by clicking on a URL link: the study was absolutely voluntary and students could withdraw from the survey at anytime before sending back their questionnaire. Personal data were anonymized and stored on a secure server. Our survey did not record any identifiable data to protect subject anonymity. Care was taken to delete IP addresses from the dataset. Data were stored in an offline database for later analyses. No informed consent form was required. Participants were informed that by accepting to send back their anonymous questionnaires, they gave their informed consent to participate. The study was carried out in accordance with ethical principles for medical research involving humans (WMA, Declaration of Helsinki).

Statistical analysis

Sociodemographic variables, addictive behavior, mental health status, history of psychosocial risk factors during medical studies, regular or psychoactive substance experience during medical studies, desired effect for substance consumption during medical studies and self-reported quality of life are presented using measures of means and dispersion (standard deviation) for continuous data and frequency distribution for categorical variables (table 1). The data was examined for normal distribution with the Shapiro-Wilk test and for homogeneity of variance with the Levene test. Comparisons between interns in psychiatry vs. interns of other specialties regarding sociodemographic variables, addictive behavior, mental health status, history of psychosocial risk factors during medical studies, regular or psychoactive substance experience during medical studies, desired effect for substance consumption during medical studies and self-reported quality of life were performed using the chi-square test for categorical variables. Continuous variables were analyzed with Student t-tests for normally distributed data and in case of normality violation, additional Mann-Whitney tests were performed to confirm the result. Multiple logistic and

linear regression analyses were then performed to confirm the association between specialty (psychiatrists vs. others) and each characteristic, after adjusting for the following main confounding factors: age, gender and number of weekly worked hours. Regression coefficients included adjusted odds ratios, and a standardized beta with a 95% confidence interval was reported. The statistical analyses were performed using the SPSS version 20.0 software package. All statistical tests were two-tailed, with α level set at 0.05.

Results

Overall, 2165 interns (302 interns in psychiatry and 1863 in other specialties) mean aged 25.9 years (+/-2.8), 35% males were included in the present study (table 1). In multivariate analyses, interns in psychiatry were found to have higher rates of current tobacco smoking (aOR=1.9 [1.4-2.5], $p<0.001$), alcohol use disorder (aOR=1.5 [1.2-2.0], $p=0.001$), cannabis use disorder (aOR=2.7 [1.8-4.2], $p<0.001$), they were more frequently followed by psychiatrist and/or psychologist (aOR=2.5 [1.9-3.3], $p<0.001$), consumed more often antidepressants (aOR=3.8 [2.2-6.6], $p<0.001$) and anxiolytic (aOR=1.8 [1.2-2.8]; $p=0.006$). They reported to have been more frequently exposed to sexual (aOR=2.2 [1.1-4.8], $p=0.04$) and physical assault (aOR=1.9 [1.3-2.9], $p=0.002$), and to have lower vitality score ($\beta = -3.5$ [0.6-6.4], $p=0.02$). Interns in psychiatry reported to have more often experienced ecstasy (aOR=1.6 [1.2-2.3], $p=0.004$), mushrooms (aOR=1.5 [1.1-2.2], $p=0.04$), amphetamines (aOR=1.9 [1.2-3.1], $p=0.009$) and LSD (aOR=1.8 [1.1-3.1], $p=0.04$). Beyond classical motives for this consumption (party, group effect), interns in psychiatry reported to seek desinhibition (aOR=1.7 [1.3-2.2], $p<0.001$), less anxiety (aOR=1.7 [1.3-2.3], $p=0.001$), both stimulant (aOR=1.4 [1.1-1.9], $p=0.04$) and sedation effect (aOR=1.9 [1.3-2.7], $p=0.001$), and to deal with sentimental breakthrough (aOR=2.0 [1.2-3.5], $p=0.01$). All these results were adjusted for age, gender and the number of weekly worked hours.

Discussion

The major findings of the present study may be summarized as follows: in a national sample of 2165 interns in medicine, the 302 interns in psychiatry were found to have increased rates of tobacco smoking, cannabis use disorder, alcohol use

disorder, increased rates of antidepressant and anxiolytic consumption, increased need for being followed by psychiatrist or psychologist and reduced self-reported vitality. They reported to have been more frequently exposed to sexual and physical assault during their medical studies and to have more frequently experienced ecstasy, amphetamine, LSD and mushrooms consumption. They also reported to seek more frequently anxiolytic and/or sedative and/or stimulant and/or disinhibiting effect, also helpful in dealing with sentimental breakthrough.

This study is the first to explore mental health and addictive behavior of interns in psychiatry. It is therefore difficult to evaluate the prevalence of each behavior in comparison of other samples (in other countries or in earlier studies).

The global smoking prevalence was 21.4% in the present sample, and 31.5% in interns in psychiatry. This is much higher than the prevalence of 6.5% found in a sample of 324 young physicians mean aged 28 years and 62% women in Spain ¹¹ and those of 6% in Americans medical students ¹² or 18.6% in an English-Hungarian study ¹³. No effect of the medical specialty on tobacco consumption was found in the first study, however psychiatry has not been analyzed separately ¹¹. The present smoking prevalence was more similar to those of Italian medical students (29.5%) and Lebanon (25.8%) ¹⁴. No study has reported the specific rates of smoking behavior in interns in psychiatry to date. However, the above-mentioned results that the smoking prevalence (31.5%) in French interns in psychiatry was higher than all reported prevalence in other countries. Alcohol consumption is more difficult to analyze because of the variety of the scales to assess alcohol use disorder and alcohol dependence, and because of the variability of alcohol use disorder according to each culture. Alcohol consumption is frequent in France, and binge drinking is found to be frequent in the population of medical students ¹⁵. Indeed, the present study suggests that interns in psychiatry reported significantly higher rates of alcohol use disorder and cannabis use disorder (respectively 40% vs. 33% and 12% vs. 5%). Moreover, these interns reported lower score of vitality and sought more frequently a stimulant effect in their substance consumption. Altogether, these results suggest that interns in psychiatry should be specifically targeted for general addictive behaviors prevention interventions.

The interns in psychiatry reported a higher need of counseling by a psychologist and/or a psychiatrist. One may hypothesize that it may be due to professional supervision purposes. However, the same interns were found to consume

more frequently antidepressants, anxiolytics and to seek diminishing anxiety, increasing disinhibition and a sedative effect through their substance consumption. Despite the cross-sectional design that enables to conclude to a direct cause, the present findings seem to suggest that interns in psychiatry are more vulnerable to depression and anxiety disorders. Moreover, as above-mentioned, they have been found to consume more tobacco and alcohol, which are risk factors for depression and anxiety¹⁶. Interns in psychiatry have also been found to experiment more frequently rare illicit drugs during their medical studies including ecstasy (24% vs. 17%), mushrooms (17% vs. 11%), amphetamine (10% vs. 6%) and LSD (7% vs. 4%). Due to the design of this study, it was not possible to evaluate each frequency of consumption. It may be hypothesized that these consumptions may impact the vitality and increase the risk for depression and anxiety. On the other hand, it may hypothesize higher vulnerability for anxiety and depression and it may increase the risk for illicit drug consumption (seeking alleviating anxiety and increasing sedation and disinhibition, as suggested in the motives for consumption). It may also be hypothesized that interns in psychiatry are more prone to test psychoactive drugs. However, they did not report higher rates of pleasure seeking or novelty seeking. The interns in psychiatry have also reported to seek more frequently for a relief in treatment while dealing with sentimental pain, despite reporting similar rates of celibacy, which may suggest increased sensibility to sentimental breakups that may be related to increased antidepressants and anxiolytics consumption.

The interns in psychiatry reported higher exposure to sexual (3%) and physical (12%) assault during their medical studies. Overall, 25 to 64% of American residents in psychiatry reported having been victims of assaults by patients¹⁷. The deep gap between these prevalences is probably due to the discrepancy in violence rates in France and USA. Despite lower rates reported in French interns, the prevention of violence should be reinforced, especially in psychiatry and emergencies¹⁸. Aggressive patients often target psychiatrists and psychiatric residents, yet most clinicians are insufficiently trained in violence risk assessment and management¹⁹. Studies about exposure of psychiatry residents to violence are scarce, most of the studies have focused on violence evaluation and management with no consensual guidelines to date²⁰.

Limits. These results should be taken with caution. As our study has a cross-sectional design, no causal link can be definitely inferred. This data was self-reported,

as in all but one previous studies². Because of the study design, it was not possible to calculate an accurate response rate. The number of interns in France in 2016-2017 is evaluated to 26,800²¹, which suggests that the present sample represent around 8% of the whole national interns at this time. The mean young age (25.9 years) suggests that the interns were mostly at the beginning of their internship. Despite these limits, our sample is one of the largest studies assessing mental health, quality of life, psychoactive use and motives in interns. It included 32% of males, which is representative of the sex ratio of interns in France in 2017²².

Strengths. The large national multicentric sample including interns of all French faculties may be cited as strength of the present work. To avoid any declaration bias, the results were strictly anonymized. The present study is a quantitative study that can alert on specific issues in psychiatry internship.

Perspectives: Future studies should include longitudinal approaches to understand the temporal relation between the above-mentioned outcomes/events and also qualitative/sociological approaches, which may yield important insight into these issues. Educational programs have shown some effectiveness to improve substance use representations in medical students²³, other programs may be developed for managing stress at work and exposure to violence.

Conclusions. The present study suggests that interns in psychiatry report higher rates of psychological and/or psychiatric follow-up, higher rates of antidepressant, anxiolytic, tobacco, alcohol, cannabis and other psychoactive consumption and higher exposure to physical and sexual assault. Their motives for consumption also suggest higher vulnerability to anxiety and depression and they reported to have been exposed to higher rates of physical and sexual violence. This population should be directly targeted for prevention interventions, which may improve mental health outcomes as well as the quality of later care for the psychiatric patients.

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Conflicts of interest

None declared.

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	Whole sample (N=2165)		Psychiatrists (N=302)		Other interns (N=1863)		P value	aOR* or beta	IC95%	adjusted p value**
	N or mean (% or SD)	N or mean (% or SD)	N or mean (% or SD)	N or mean (% or SD)	N or mean (% or SD)	N or mean (% or SD)				
Sociodemographic variables										
Age (years)	25.9	2.8	27.5	2.3	26.0	2.7	<0.001			
Gender (male)	758	35.0%	97	32.1%	661	35.5%	0.26			
Marital status (couple)	1520	70.2%	218	72.2%	1302	69.9%	0.41			
Having children	159	7.3%	25	8.3%	134	7.2%	0.50			
Weekly hours of work >40h	1466	67.7%	161	53.3%	1305	70.0%	<0.001			
Addictive behavior										
Current daily tobacco smoking	44	21.4%	95	31.5%	369	19.5%	<0.001	1.9	1.4	2.5
Current cannabis use disorder*	133	6.1%	37	12.3%	96	5.2%	<0.001	2.7	1.8	4.2
Current alcohol use disorder***	736	34.0%	123	40.7%	613	32.9%	0.0008	1.5	1.2	2.0
Current alcohol dependency	144	6.7%	23	7.6%	121	6.5%	0.47			
Mental health status										
Psychiatric follow-up	404	18.7%	107	35.4%	297	15.9%	<0.001	2.5	1.9	3.3
Anxiolytic consumption	145	6.7%	32	10.6%	113	6.1%	0.0003	1.8	1.2	2.8
Antidepressant consumption	66	3.0%	24	7.9%	42	2.3%	<0.001	3.8	2.2	6.6
Hypnotic consumption	92	4.2%	16	5.3%	76	4.1%	0.33			
Mood stabilizer consumption	16	0.7%	4	1.3%	12	0.6%	0.20			
Antipsychotic consumption	10	0.5%	2	0.7%	8	0.4%	0.63			
At least one daily psychotropic consumption	72	3.3%	24	7.9%	48	2.6%	<0.001	2.2	1.5	3.3
History of psychosocial risk factors during medical studies										
Sexual Assault	37	1.7%	10	3.3%	27	1.4%	0.02	2.2	1.1	4.8
Domestic violence	39	1.8%	5	1.7%	34	1.8%	0.83			
Physical Assault	167	7.7%	38	12.6%	129	6.9%	0.0001	1.9	1.3	2.9

Regular or Psychoactive substance experience during medical studies

Ecstasy	31	18.2	65	24.4	248	17.0	0.00	1.6	1.	2.3	0.004
	3	%		%		%	4		2		
Cocaine	23	13.9	58	21.8	181	12.4	<0.0				
	9	%		%		%	01				
Mushrooms	20	12.1	44	16.5	165	11.3	0.02	1.5	1.	2.2	0.04
	9	%		%		%	0.02		1		
Amphetamine	10	6.3	27	10.2	82	5.6	0.00	1.9	1.	3.1	0.009
	9	%		%		%	5		2		
LSD	76	4.4	19	7.1	57	3.9	0.02	1.8	1.	3.1	0.04
		%		%		%	0.02		1		
Heroin	8	0.5	0	0%	8	0.5	0.61				
		%				%					
Ketamine	65	2.8	15	5.6	50	3.4	0.08				
		%		%		%					

Desired effect for substance consumption during medical studies

During party	14	81.8	219	82.3	1190	81.7	0.79				
	09	%		%		%					
Pleasure seeking	13	79.6	209	78.6	1162	79.8	0.66				
	71	%		%		%					
Novelty seeking	90	52.6	146	54.9	760	52.2	0.41				
	6	%		%		%					
Group effect	66	38.5	113	42.5	550	37.7	0.14				
	3	%		%		%					
Disinhibition	59	34.3	112	42.1	479	32.9	0.00	1.7	1.	2.2	<0.001
	1	%		%		%	4		3		
Dealing with anxiety	40	23.2	89	33.5	311	21.3	<0.0	1.7	1.	2.3	0.001
	0	%		%		%	01		3		
Stimulant	45	26.1	79	29.7	371	25.5	0.15	1.4	1.	1.9	0.04
	0	%		%		%	0.15		1		
Sedative	20	12.0	49	18.4	158	10.8	<0.0	1.9	1.	2.7	0.001
	7	%		%		%	01		3		
Study difficulties	25	14.7	48	18.0	205	14.1	0.09				
	3	%		%		%					
Dealing with sentimental break	77	4.5	21	7.9	56	3.8	0.00	2.0	1.	3.5	0.01
		%		%		%	3		2		
Stress before shift	10	6.3	19	7.1	90	6.2	0.55				
	9	%		%		%					
Stress during shift	76	4.4	16	6.0	60	4.1	0.16				
		%		%		%					
Familial difficulties	56	3.3	12	4.5	44	3.0	0.21				
		%		%		%					
Struggle vs. loneliness	35	2.0	8	3.0	27	1.9	0.22				
		%		%		%					

Self-reported quality of life

Physical Functioning	94.	13.2	95.7	11.8	95.2	12.5	0.53				
	5										
Role Physical	85.	20.5	86.6	20.1	84.9	21.6	0.19				
	5										
Bodily Pain	90.	17.3	92.0	17.8	91.5	16.5	0.64				
	0										
General Health	75.	20.3	74.4	20.6	76.4	21.1	0.13				
	4										
Vitality	35.	22.8	33.4	20.7	37.2	23.8	0.00	-3.5	-	-	0.02
	1						3		6.	0.6	
									4		
Social Functioning	74.	22.7	75.4	21.8	76.4	21.2	0.44				

	2						
Role Emotionnal	68.	24.6	74.0	22.3	74.3	23.6	0.84
	4						
Mental Health	56.	19.5	62.1	18.7	61.3	18.0	0.44
	6						

Table 1. Comparisons of 302 interns in psychiatry vs. 1863 other interns in a national sample of interns recruited between December 2016 and May 2017: mental health status, motives for consumption and psychosocial risk factors (univariate and multivariate analyses).

* defined by CAST score 2

** adjusted for age, gender and number of weekly worked hours

*** defined by a AUDIT score 7 for men and 6 for women

Significant associations are in bold. Regression coefficients included adjusted odds ratios / beta with 95% confidence interval (non psychiatrists=reference). Each coefficient was adjusted for main confounding factors (age, gender, mean number of worked hours >40).

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