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Barriers of mental health treatment utilization among first-year college students: First cross-national results from the WHO World Mental Health International College Student Initiative

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Abstract

Background: Although mental disorders and suicidal thoughts-behaviors (suicidal thoughts and behaviors) are common among university students, the majority of students with these problems remain untreated. It is unclear what the barriers are to these students seeking treatment.

Aims: The aim of this study is to examine the barriers to future help-seeking and the associations of clinical characteristics with these barriers in a cross-national sample of first-year college students.

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Method: As part of the World Mental Health International College Student (WMH-ICS) initiative, web-based self-report surveys were obtained from 13,984 first-year students in eight countries across the world. Clinical characteristics examined included screens for common mental disorders and reports about suicidal thoughts and behaviors. Multivariate regression models adjusted for socio-demographic, college-, and treatment-related variables were used to examine correlates of help-seeking intention and barriers to seeking treatment.

Results: Only 24.6% of students reported that they would definitely seek treatment if they had a future emotional problem. The most commonly reported reasons not to seek treatment among students who failed to report that they would definitely seek help were the preference to handle the problem alone (56.4%) and wanting to talk with friends or relatives instead (48.0%). Preference to handle the problem alone and feeling too embarrassed were also associated with significantly reduced odds of having at least some intention to seek help among students who failed to report that they would definitely seek help. Having 12-month major depression, alcohol use disorder, and suicidal thoughts and behaviors were also associated with significantly reduced reported odds of the latter outcome.

Conclusions: The majority of first-year college students in the WMH-ICS surveys report that they would be hesitant to seek help in case of future emotional problems. Attitudinal barriers and not structural barriers were found to be the most important reported reasons for this hesitation. Experimental research is needed to determine whether intention to seek help and, more importantly, actual help-seeking behavior could be increased with the extent to which intervention strategies need to be tailored to particular student characteristics. Given that the preference to handle problems alone and stigma and appear to be critical, there could be value in determining if internet-based psychological treatments, which can be accessed privately and are often build as self-help approaches, would be more acceptable than other types of treatments to student who report hesitation about seeking treatment.

KEYWORDS

epidemiology, public mental health, service utilization, student, treatment gap

1 | INTRODUCTION

Mental disorders and suicidal thoughts and behaviors are highly prevalent among college students (Auerbach et al., 2016, 2018; Mortier et al., 2018) and are associated with substantial current role impairments (Alonso et al., 2018) as well as with diverse negative long-term consequences such as lower academic achievement (Bruffaerts et al., 2018; Eisenberg, Golberstein, & Hunt, 2009; Hysenbegasi, Hass, & Rowland, 2005; Mortier et al., 2015), higher risk for dropout (Ishii et al., 2018; Kessler, Foster, Saunders, & Stang, 1995), and worse functioning in later life (Goldman-Mellor et al., 2014; Niederkrotenthaler et al., 2014).

Despite the wide availability and efficacy of clinical interventions (Cuijpers et al., 2013), the vast majority of college students with clinically significant mental disorders and suicidal thoughts and behaviors remain untreated even in high income countries (Auerbach et al., 2016; Blanco et al., 2008; Demyttenaere et al., 2004; Eisenberg et al., 2009; Larisch et al., 2013; Mortier et al., 2018). Cross-national data suggest that less than one in four students with any 12-month mental disorder or suicidal thoughts and behaviors (STB) receives any kind of treatment (Bruffaerts et al., 2019), with 12-month disorder-specific treatment rates ranging from 19.8% for alcohol use disorder to 42% for panic disorder.

Structural supply shortfalls doubtlessly are at least partially responsible for these low treatment rates. However, recent studies suggest that a large number of affected students do not make use of treatments even when they are available (Bruffaerts et al., 2019). Known barriers to treatment include the perception that treatment is not needed, lack of time, perceived stigma, and preference for self-management (Eisenberg, Hunt, & Speer, 2012, Vidourek, King, Nabors, & Merianos,

2014). These findings are in line with results from a systematic review of reported barriers to mental health treatment in adolescent general population samples that identified stigma, embarrassment, problems recognizing symptoms, and a preference for self-reliance as the most important barriers (Gulliver, Griffiths, & Christensen, 2010).

To the best of our knowledge, no cross-national data exist on barriers to mental health help-seeking among college students, as most published studies on that topic have been based on cohorts in the United States (Csyz et al., 2013; Eisenberg et al., 2012; Vidourek et al., 2014, Eisenberg et al., 2014). The aim of the current study is to present preliminary information about these barriers based on data collected in the World Mental Health International College Student (WMH-ICS) surveys. We focus on reported willingness of first-year college students from eight countries worldwide to use mental health services, reported barriers to such help-seeking and the correlates of reported these barriers.

2 | METHODS

2.1 | Sample and procedures

As reported in prior papers in this issue, the first phase of survey data collection in the WMH-ICS designed to obtain basic cross-national information on the prevalence, incidence, and correlates of mental, substance, and behavioral disorders among college students worldwide; to describe patterns of service use, barriers to treatment, and unmet need for treatment; to investigate the associations of these disorders with role function in academic and other life domains; to evaluate the effects of a wide range of preventive and clinical interventions on student mental health, functioning, and academic performance; and to develop precision medicine clinical decision support tools to help select the right interventions for the right students (Cuijpers et al., 2019).

Web-based self-report questionnaires were administered to representative samples of first-year students in 19 colleges and universities (seven private, 12 public; henceforth referred to as "colleges") in eight countries (Australia, Belgium, Germany, Mexico, Northern Ireland, South Africa, Spain, and the United States). Each collaborating college obtained ethical approval to participate in the project and all participants provided informed consent. This initial round of WMH-ICS surveys was conducted between October 2014 and February 2017. The sample size ranged from 633 in Australia to 4,590 in Belgium, with a total of 14.371 students across countries and a weighted mean response rate across all surveys of 45.5%. For the present analysis, we restricted the sample to full-time students that self-identified as male or female (n = 13,984) and excluded those with missing information on gender or full-time status (n = 35) or who did not identify as male or female (n = 50) or who reported part-time status (n = 302).

Most of these students came from the Australian sample and were older, full-time employed people who would normally be expected to access mental health services, if they were needed, through their employer or employer sponsored health insurance rather than through their college. In addition, preliminary analyses reported below showed that the majority of the 50 remaining students who identified either as transgender or "other" rather than as male or female endorsed a number of mental disorders and experienced considerable impairment, leading us to focus on them in a separate report.

All first-year students in the colleges were invited to participate in a web-based self-report health survey. While the core set of survey questions was identical across all countries, the initial mode of contact varied across colleges. In all cases other than in Mexico, we attempted to recruit 100% of first-year students either as part of a health evaluation, the registration process, or in a stand-alone web survey delivered to students via their university email addresses. Students in Mexico were invited to fill out the survey in conjunction with mandatory activities (e.g., student health evaluations and tutoring sessions). Other than in Mexico, where no attempts were made to recruit initial nonrespondents, attempts to complete the survey with initial nonrespondents were made through a series of personalized reminder emails. Financial incentives were used in the final stages of recruitment in 10 of these colleges. Spain applied an "end-game" strategy, in which a random sample of nonrespondents received a financial incentive for one last chance at participation, with those responding in this final phase given a weight equal to the inverse of their probability of selection to adjust for the undersampling of these hard-to-recruit students.

2.2 | Measures

2.2.1 | Intention to use mental health services

Intention to use mental health services in case of a future emotional problem was assessed by asking participants "If during this coming school year, you developed an emotional problem that caused you a lot of distress and interfered with your school work, how likely would you be to go to the student Counseling Center for help?" "How likely would you be to go somewhere else for help, like to your doctor, a mental health professional, or religious advisor?" (definitely would go [4]; probably would go [3]; might or might not go [2]; probably would not go [1]; definitely would not go [0]; Ursano, 2012). A dichotomy was created by collapsing the highest two values in response to either of these two questions into a positive value and others into a negative value.

2.2.2 | Barriers of treatment

If participants did not indicate that they "definitely would go" to seek help in case of a future emotional problem, they were asked about potential reasons: "If you decided not to seek help if you developed such a problem, how important do you think each of these would be as reasons for not seeking help?". Reasons listed were: "You are not sure available treatments are very effective"; "You would want to handle the problem on your own"; "You would be too embarrassed"; "You would talk to friends or relatives instead"; "You think it costs

too much money"; "You are unsure of where to go or who to see"; "You anticipate problems with time, transportation, or scheduling"; "You are afraid it might harm your school or professional career"; "You are afraid of different treatment from others"; and "Other reasons" (1 = very important; 2 = important; 3 = moderately important; 4 = somewhat important; 5 = unimportant; Hoge et al., 2004; Kessler et al., 2008).

2.2.3 | Mental disorders

As described in more detail elsewhere in this issue (Auerbach et al., 2018) 12-month major depression, generalized anxiety disorder, panic disorder, broad mania, and drug use disorder were assessed using the validated self-report screening scales of the widely used Composite International Diagnostic Interview (Kessler, Calabrese, et al., 2013; Kessler & Üstün, 2004). These scales correlate highly with blinded clinical diagnoses based on the Structured Clinical Interview for DMS-IV (First, Spitzer, Gibbon, & Williams, 1994), with area under the curve (AUC) in the range 0.70–0.78 (Kessler, Calabrese, et al., 2013; Kessler, Santiago, et al., 2013). Alcohol use disorder was assessed using the Alcohol Use Disorders Identification Test (AUDIT; Saunders, Aasland, Babor, De la Fuente, & Grant, 1993), with either a total score of 8+ or a score of 4+ on the AUDIT dependence questions as a definition for alcohol use disorder (Babor, Higgins-Biddle, Saunders, & Monteiro, 2001). The concordance of the AUDIT with clinical diagnoses is in the range AUC = 0.78–0.91 (Reinert & Allen, 2002).

2.2.4 | Suicidal thoughts and behaviors

Lifetime and 12 months suicidal thoughts and behaviors were assessed using a modified version of the Columbia Suicidal Severity Rating Scale (Posner et al., 2011). The key questions were: "Did you ever wish you were dead or would go to sleep and never wake up?" and "Did you ever in your life have thoughts of killing yourself?" (suicidal ideation); "Did you ever think about how you might kill yourself (e.g., taking pills, shooting yourself) or work out a plan of how to kill yourself?" (suicide plans); and "Have you ever made a suicide attempt (i.e., purposefully hurt yourself with at least some intent to die)?" (suicide attempts).

2.2.5 | Stages of change scale

All respondents were presented with an adapted version of the Stages of Change scale that asked

> *How would you rate your readiness or willingness to change any emotional or substance use problems you are experiencing at this time (check one of the following): I do not have a problem that I need to change; I have a problem, but I am not yet sure I want to take action to change it; I have a problem and I intend to address it; I have a problem and I already am working actively to change it; I had a problem but I have addressed it and things are better now.*

2.2.6 | Socio-demographics

Gender was assessed by asking respondents whether they identified as being male, female, transgender (male-to-female/female-to-male), or "other." Respondent age was categorized into three categories (18 years/19 years/20 or more years old). Parental educational level was assessed for father and mother separately and was categorized into high (university graduate or more), medium (some postsecondary education), and low (secondary school or less) based on the higher-of-both parents' educational levels. Parental marital status was dichotomized into "parents married and both alive" versus all others. Respondents were asked about the urbanicity of the place they were raised (small city/large city/town or village/suburbs/rural area) and their religious background (categorized into Christian/Other religion/No religion). Sexual orientation was classified into the categories heterosexual: gay or lesbian, bisexual, asexual, not sure, and other. Additional questions were asked about the extent to which respondents reported being attracted to men and women and the gender(s) of people they had sex with (if any) in the past 5 years. Responses were used to categorize each student as either heterosexual with no same-sex attraction, heterosexual with some same-sex attraction, nonheterosexual without same-sex sexual intercourse, and nonheterosexual with same-sex sexual intercourse.

2.2.7 | College-related predictors

Respondents were asked where they ranked academically compared with other students at the time of their high school graduation (from top 5% to bottom 10%; categorized into quartiles) and what their most important reason was for going to college. Based on the results of a tetrachoric factor analysis (details available on request), responses were categorized into either extrinsic reasons (i.e., "family wanted me to," "my friends were going," "teachers advised me to," and "I did not want to get a job right away") or intrinsic reasons ("to achieve a degree," "I enjoy learning and studying," "to study a subject that really interests me," "to improve job prospects generally," and "to train for specific type of job"). Respondents were also asked where they were living during the first semester of the academic year (parents', other relative's, or own home/university or college hall of residence/shared house, apartment, or flat/private hall of residence/other) and if they expect to work in a student job.

2.2.8 | Treatment utilization

Past year use of mental health treatment for any emotional or substance use problem was assessed by asking participants whether they ever got psychological counseling or medication for an emotional or substance problem along with ages of first and last times they received medication or counseling (Kessler & Üstün, 2004; Ursano, 2012; Hoge et al., 2004).

2.3 | Analysis

All analyses were conducted with SAS version 9.4. Data were weighted using poststratification weights (Groves & Couper, 2012) to adjust for differences between survey respondents and nonrespondents based on socio-demographic and college-related characteristics that were made available by institutional officials. Multiple imputation by chained equations (Van Buurens, 2012) was used to adjust for within-survey item nonresponse, random internal subsampling of survey sections, and missing data due to skip logic errors that occurred in some of the surveys. All analyses were conducted in the subsample that excluded the 24.6% of students who said they would definitely seek treatment in case of a future emotional problem (n = 9,939; 75.4% of the total sample). In the first step, we estimated the distribution of the eight reported barriers to seeking treatment in this subsample. To obtain pooled estimates of prevalence across countries, each country was given an equal sum of weights.

Second, we estimated the associations between both a total score for overall number of barriers for seeking treatment obtained by summing all eight barrier items (on the one hand) and type of 12-month mental disorder, number of 12-month mental disorders, and 12-month suicidal thoughts and behaviors (on the other hand). Ordinary least squares regression was used. We estimated bivariate associations adjusting only for country of survey followed by multivariate models including all possible combinations of predictor blocks, that is, (a) six types of 12-month mental disorders, coded as six dummy variables; (b) number of 12-month mental disorders, coded as a continuous predictor (ranging from zero to six); (c) number of 12-month mental disorders, coded as series of dummy variables indicating exactly one, exactly two, and three or more disorders; and (d) 12-month suicidal thoughts and behaviors. Best-fitting multivariate models were selected based on the Akaike information criterion. All multivariate models adjusted for socio-demographic and college-related predictors, country membership, past-year treatment, likelihood of seeking treatment in case of a future emotional problem, and scores on the stages of change scale. This enabled us to examine the associations of clinical characteristics with barriers over and above the socio-demographic, college-related, and treatment history-related variables associated with the clinical characteristics.

Third, we used ordinal regression to estimate the associations of the eight individual reported barriers for seeking treatment with type number of 12-month mental disorders and 12-month suicidal thoughts and behaviors. We began by estimated bivariate associations (adjusting for country membership only), followed by multivariate models including all possible combinations of predictor blocks. Multivariate models were adjusted for the same covariates as in Step 2, as well as for the total barriers score to identify unique associations between clinical characteristics and specific barriers, above and beyond the effect of the total barriers score.

Fourth, we again used ordinal regression to examine the associations of likelihood of seeking treatment in case of a future emotional problem with the eight barriers, type of 12-month mental disorder, number of 12-month mental disorders, and 12-month suicidal thoughts and behaviors. As in early steps in the analysis, models included all possible combinations of predictor blocks and adjusted for the same covariates as in Step 2. Although only the best-fitting models are reported below, results of all other models are available on request. We exponentiated the regression coefficients and their multiple imputation-based standard errors to obtain odds ratios (ORs) and associated 95% confidence intervals. Statistical significance was set in all analyses at level $\alpha < .05$ using two-sided tests.

3 | RESULTS

3.1 | Sample description and willingness to seek help in the overall sample

Only 24.6% of the 13,984 students in the total sample indicated that they would definitely seek help in case of a future emotional problem, whereas 32% said they probably would seek help, 24.9% might or might not, 13.3% probably would not, and 5.2% definitely would not. Subsequent analyses focused on the 75.4% (n = 9,939) of students exclusive of those who reported that they definitely would seek help. More than one fourth (28.6%) of the students who would not definitely seek treatment fulfilled the criteria for at least one of the 12-month mental disorder assessed in the survey. The most prevalent 12-month disorders were major depressive episode (18.6%) and generalized anxiety disorder (16.1%), with 17.9% of the focal sample meeting criteria for exact one, 8.9% exact two, and 4.7% three or more of the mental disorders assessed in the survey. Twelve-month suicide ideation was reported by 8.8% of the respondents who would not definitely seek treatment, and 7.8% reported a 12-month suicide plan. Patterns of service use among these students as a function of 12-month disorders are reported elsewhere in this issue (Bruffaerts et al., 2019).

3.2 | Barriers to mental health treatment

Table 1 shows the distribution of barriers and their relative importance among students in the focal sample. The barrier rated the most important was the preference to handle the problem alone (rated either "important" or "very important" by 56.4% of respondents) followed by wanting to talk with friends or relatives instead (48%) and being too embarrassed to seek help (32.2%). Structural barriers such as cost (24.1%) and anticipating problems with time, transportation, or scheduling (22.6%) were rated of lower importance than most attitudinal barriers.

3.3 | Clinical characteristic as correlates of barriers to treatment

Table 2 shows bivariate associations of clinical characteristics with reported barriers to treatment. Almost all investigated clinical characteristics were associated with increased reporting of treatment barriers. The highest regression coefficients predicting the total barriers score were associated with having three or more disorders

TABLE 1 Perceived barriers to seeking treatment (n = 9,939)

	You are not sure available treatments are very effective % (*SE*)	You would want to handle the problem on your own % (*SE*)	You would be too embarrassed % (*SE*)	You would talk to friends or relatives instead % (*SE*)	You think it costs too much money % (*SE*)	You are unsure of where to go or who to see % (*SE*)	You anticipate problems with time, transportation, or scheduling % (*SE*)	You are afraid it might harm your school or professional career % (*SE*)
Unimportant	26.6 (0.7)	7.9 (0.4)	21.3 (0.6)	14.7 (0.6)	30.7 (0.7)	23.0 (0.7)	31.1 (0.7)	33.5 (0.7)
Of little importance	23.6 (0.6)	11.4 (0.5)	22.8 (0.7)	15.7 (0.6)	23.6 (0.7)	21.8 (0.6)	24.9 (0.7)	24.6 (0.7)
Moderately important	24.8 (0.7)	24.3 (0.7)	23.6 (0.7)	21.7 (0.7)	19.6 (0.6)	26.0 (0.7)	21.4 (0.6)	19.2 (0.6)
Important	17.8 (0.6)	32.4 (0.7)	20.2 (0.6)	27.7 (0.7)	15.2 (0.6)	22.1 (0.7)	15.3 (0.6)	13.7 (0.5)
Very important	7.1 (0.4)	24.0 (0.7)	12.0 (0.5)	20.3 (0.6)	10.9 (0.5)	7.2 (0.4)	7.3 (0.4)	9.1 (0.5)

Note. All analyses were conducted in the subsample of respondents that would not definitely seek treatment in case of a future emotional problem (n = 9,939; 75.4% of the total sample). To obtain pooled estimates of prevalence, each country was given an equal sum of weights.

Abbreviation: SE, standard error.

(b = 3.23), broad mania (b = 2.44), and generalized anxiety disorders (b = 2.30). A similar picture occurred when predicting individual barriers, with clinical characteristics associated with increased reporting. The exception was "wanting to talk with friends instead," which was inversely associated with most clinical characteristics (significant ORs ranging between 0.56 and 0.85).

When examining multivariate associations of these clinical characteristics predicting the summary count of number of barriers (Table 3), the best-fitting regression model, adjusted for socio-demographic, college-related, and treatment-related characteristics, included type of mental disorder as a significant predictor block within significant predictive associations for either number of disorders or suicidal thoughts and behaviors. The individual disorders most strongly related to barriers were generalized anxiety disorder (b = 1.45), broad mania (b = 1.17), alcohol use disorder (b = 1.15), and major depression (b = 1.06).

When examining multivariate associations of clinical characteristics predicting individual barriers, a more differentiated picture occurred. None of the specific barriers were predicted by all three types of clinical characteristics, that is, types of mental disorders, number of mental disorders, and suicidal thoughts and behaviors. After adjustment for all covarites (including the total barriers score), none of the three broad groups of clinical characteristics predicted the barriers "wanting to handle the problem on one's own," "being unsure available treatments are very effective," "being unsure of where to go or who to see," and "anticipating problems with time, transportation, or scheduling" in the multivariate model. For each of the other barriers, different combinations of clinical characteristics were significant predictors. As in the bivariate models, and with only two exceptions, these associations were positive, which means that these specific barriers were significantly more likely to be reported by students with than without the clinical characteristics, above and beyond the effect of the total barrier score.

The first of the two exceptions to this general pattern was a negative association of number of disorders with embarrassment in a model that also included disorder types (which had significantly elevated ORs) as predictors. The negative associations of number with embarrassment in this model indicated that there are submultiplicative interactions of comorbid disorders with this barrier. That is, odds of embarrassment being a barrier are elevated among students with individual disorders (most notably major depression and generalized anxiety disorder), but this elevated risk is dampened among students with multiple disorders. The second exception was that several clinical characteristics were associated with significantly reduced odds of reporting wanting to talk to friends or relatives instead of a profession as a reason for not wanting to seek professional treatment.

3.4 | Predicting likelihood to seek treatment in case of an emotional problem

We also examined associations of treatment barriers and 12-month clinical characteristics in predicting reported intentions to seek treatment in case of a future emotional problem, again excluding from the analysis students who reported that they would definitely seek

TABLE 2 Bivariate associations of clinical characteristics predicting perceived barriers to seeking treatment (n = 9,939)

			Perceived barriers for seeking treatment							
	Predictor distribution[a]	Perceived barriers for seeking treatment total score	You are not sure available treatments are very effective	You would want to handle the problem on your own	You would be too embarrassed	You would talk to friends or relatives instead	You think it costs too much money	You are unsure of where to go or who to see	You anticipate problems with time, transportation, or scheduling	You are afraid it might harm your school or professional career
	% (*SE*)	*b* (*SE*)	OR (95% CI)	OR (95% CI)	OR (95% CI)	OR (95% CI)	OR (95% CI)	OR (95% CI)	OR (95% CI)	OR (95% CI)
Type of 12-month mental disorder										
Major depressive episode	18.1 (0.6)	1.83 (0.16)*	1.23 (1.14–1.34)*	1.29 (1.18–1.41)*	1.71 (1.57–1.87)*	0.72 (0.66–0.79)*	1.59 (1.47–1.72)*	1.38 (1.27–1.51)*	1.43 (1.32–1.55)*	1.50 (1.38–1.63)*
Generalized anxiety disorder	16.1 (0.6)	2.30 (0.18)*	1.35 (1.23–1.47)*	1.21 (1.10–1.34)*	1.69 (1.54–1.86)*	0.84 (0.77–0.93)*	1.70 (1.55–1.86)*	1.42 (1.29–1.56)*	1.64 (1.50–1.80)*	1.65 (1.52–1.80)*
Panic disorder	4.2 (0.3)	1.91 (0.41)*	1.39 (1.12–1.73)*	1.17 (0.92–1.47)	1.36 (1.09–1.68)*	0.79 (0.62–1.00)	1.48 (1.23–1.77)*	1.32 (1.09–1.60)*	1.53 (1.24–1.88)*	1.74 (1.37–2.21)*
Broad mania	3.1 (0.3)	2.44 (0.36)*	1.42 (1.18–1.72)*	1.55 (1.27–1.89)*	1.51 (1.25–1.84)*	0.73 (0.60–0.88)*	1.48 (1.23–1.76)*	1.68 (1.38–2.05)*	1.48 (1.22–1.79)*	1.72 (1.43–2.06)*
Alcohol abuse or dependence	6.8 (0.4)	1.29 (0.23)*	1.17 (1.04–1.31)*	1.20 (1.06–1.37)*	1.20 (1.06–1.35)*	0.99 (0.87–1.11)	1.20 (1.06–1.36)*	1.15 (1.02–1.29)*	1.23 (1.08–1.40)*	1.35 (1.20–1.52)*
Drug abuse or dependence	3.1 (0.3)	0.78 (0.40)	1.21 (0.99–1.48)	1.31 (1.06–1.63)*	0.98 (0.80–1.20)	0.74 (0.60–0.92)*	1.34 (1.09–1.65)*	1.10 (0.89–1.35)	1.33 (1.08–1.64)*	1.14 (0.91–1.43)
Number of 12-month disorders										
Three or more	4.7 (0.4)	3.23 (0.34)*	1.57 (1.30–1.89)*	1.41 (1.16–1.72)*	1.78 (1.47–2.15)*	0.66 (0.54–0.81)*	2.07 (1.73–2.46)*	1.67 (1.41–1.99)*	1.98 (1.64–2.39)*	2.28 (1.90–2.72)*
Exactly two	8.9 (0.4)	2.35 (0.23)*	1.34 (1.19–1.50)*	1.33 (1.16–1.52)*	1.81 (1.60–2.05)*	0.76 (0.67–0.87)*	1.73 (1.55–1.94)*	1.42 (1.26–1.61)*	1.72 (1.54–1.92)*	1.70 (1.51–1.91)*
Exactly one	17.9 (0.6)	1.34 (0.16)*	1.16 (1.07–1.26)*	1.22 (1.12–1.32)*	1.51 (1.39–1.64)*	0.85 (0.78–0.93)*	1.32 (1.22–1.43)*	1.26 (1.16–1.38)*	1.23 (1.13–1.33)*	1.28 (1.18–1.38)*
None	68.5 (0.7)	(ref)	(ref)	(ref)	(ref)	(ref)	(ref)	(ref)	(ref)	(ref)
$F\,(df_n,df_d)$[b]		$F_{3,1576}$ = 77.44*	$F_{3,624}$ = 18.27*	$F_{3,432}$ = 14.61*	$F_{3,465}$ = 64.54*	$F_{3,272}$ = 14.10*	$F_{3,813}$ = 58.56*	$F_{3,414}$ = 26.87*	$F_{3,1085}$ = 51.57*	$F_{3,616}$ = 58.34*
12-month suicidal thoughts and behaviors										
Planned or unplanned attempt	0.9 (0.1)	1.77 (0.75)*	1.18 (0.79–1.76)	1.17 (0.77–1.76)	1.91 (1.27–2.86)*	0.56 (0.38–0.83)*	1.81 (1.25–2.62)*	1.27 (0.86–1.88)	1.50 (1.02–2.20)*	2.09 (1.43–3.06)*
Plan, no attempts	7.8 (0.4)	1.25 (0.26)*	1.29 (1.13–1.47)*	1.29 (1.11–1.49)*	1.47 (1.29–1.68)*	0.52 (0.45–0.60)*	1.63 (1.42–1.87)*	1.25 (1.10–1.42)*	1.33 (1.16–1.53)*	1.59 (1.39–1.82)*
Ideation only	8.8 (0.4)	0.79 (0.23)*	1.13 (1.00–1.26)*	1.17 (1.04–1.33)*	1.40 (1.25–1.58)*	0.74 (0.66–0.83)*	1.41 (1.26–1.58)*	1.24 (1.10–1.38)*	1.19 (1.06–1.34)*	1.09 (0.97–1.22)
Never	82.6 (0.6)	(ref)	(ref)	(ref)	(ref)	(ref)	(ref)	(ref)	(ref)	(ref)
$F\,(df_n,df_d)$[b]		$F_{3,2068}$ = 12.44*	$F_{3,569}$ = 5.63*	$F_{3,422}$ = 5.64*	$F_{3,716}$ = 23.58*	$F_{3,227}$ = 31.81*	$F_{3,511}$ = 28.69*	$F_{3,928}$ = 7.91*	$F_{3,415}$ = 9.07*	$F_{3,587}$ = 19.58*

Note. All analyses were conducted in the subsample that would not definitely seek treatment in case of a future emotional problem (n = 9,939; 75.4% of the total sample). All models adjusted for country membership.

Abbreviations: b, unstandardized regression coefficient; CI, confidence interval; OR, odds ratio; SE, standard error.

[a]To obtain pooled estimates of prevalence, each country was given an equal sum of weights.

[b]F test to evaluate joint significance of predictor block. df_n = numerator degrees of freedom; df_d = denominator degrees of freedom.

*$p < .05$.

TABLE 3 Multivariate predictors for perceived barriers for seeking treatment (n = 9,939)

	Predictor distribution[a]	Perceived barriers for seeking treatment total score	Barriers			
			You would be too embarrassed	You would talk to friends or relatives instead	You think it costs too much money	You are afraid it might harm your school or professional career
	% (*SE*)	*b* (*SE*)	OR (95% CI)	OR (95% CI)	OR (95% CI)	OR (95% CI)
Type of 12-month mental disorder						
Major depressive episode	18.1 (0.6)	1.06 (0.19)*	1.48 (1.30–1.69)*	0.74 (0.65–0.84)*	1.06 (0.94–1.20)	0.98 (0.86–1.12)
Generalized anxiety disorder	16.1 (0.6)	1.45 (0.20)*	1.31 (1.12–1.55)*	0.86 (0.74–1.00)	1.09 (0.97–1.24)	0.98 (0.84–1.15)
Panic disorder	4.2 (0.3)	0.58 (0.42)	1.04 (0.77–1.41)	0.86 (0.64–1.16)	0.89 (0.70–1.14)	1.17 (0.88–1.57)
Broad mania	3.1 (0.3)	1.17 (0.37)*	1.07 (0.83–1.39)	0.74 (0.58–0.95)*	0.83 (0.67–1.03)	0.96 (0.75–1.23)
Alcohol abuse or dependence	6.8 (0.4)	1.15 (0.24)*	1.05 (0.90–1.22)	0.96 (0.83–1.11)	0.88 (0.76–1.02)	1.04 (0.90–1.21)
Drug abuse or dependence	3.1 (0.3)	0.22 (0.41)	0.89 (0.69–1.16)	0.91 (0.70–1.17)	1.20 (0.92–1.58)	0.75 (0.57–1.00)
$F(df_n,df_d)$[b]		$F_{6,1076}$ = 32.81*	$F_{6,501}$ = 8.96*	$F_{6,260}$ = 4.41*	$F_{6,241}$ = 1.89	$F_{6,64}$ = 0.47
Number of 12-month disorders						
Three or more mental disorders	4.7 (0.4)	-	0.56 (0.38–0.82)*	1.30 (0.90–1.87)	-	1.46 (1.03–2.07)*
Exactly two mental disorders	8.9 (0.4)	-	0.79 (0.64–0.97)*	1.12 (0.91–1.39)	-	1.24 (0.98–1.57)
Exactly one mental disorder	17.9 (0.6)	-	(ref)	(ref)	-	(ref)
None	68.5 (0.7)	-	(ref)	(ref)	-	(ref)
$F(df_n,df_d)$[b]		-	$F_{2,193}$ = 4.67*	$F_{2,386}$ = 1.39	-	$F_{2,295}$ = 2.48
12-month suicidal thoughts and behaviors						
Planned or unplanned attempt	0.9 (0.1)	-	1.27 (0.81–2.00)	0.69 (0.45–1.06)	1.39 (0.89–2.16)	1.67 (1.04–2.69)*
Plan, no attempts	7.8 (0.4)	-	1.10 (0.93–1.32)	0.61 (0.52–0.71)*	1.30 (1.10–1.54)*	1.33 (1.12–1.57)*
Ideation only	8.8 (0.4)	-	1.17 (1.03–1.32)*	0.79 (0.70–0.90)*	1.22 (1.06–1.40)*	0.92 (0.80–1.05)
Never	82.6 (0.6)	-	(ref)	(ref)	(ref)	(ref)
$F(df_n,df_d)$[b]		-	$F_{3,764}$ = 2.40	$F_{3,422}$ = 14.75*	$F_{3,323}$ = 5.08*	$F_{3,484}$ = 5.95*

Note. All analyses were conducted in the subsample that would not definitely seek treatment in case of a future emotional problem (n = 9,939; 75.4% of the total sample). Models with optimal model fit (based on Akaike information criterion) are shown. For four barriers (not sure available treatments are very effective, want to handle problems on own, not sure where to go or who to see, anticipated problems with time or travel or scheduling), mental disorders, number of mental disorders, and suicidal thoughts and behaviors were not significant as predictors; those barriers are not shown in the table. Each model includes the predictors shown in the rows, and adjusts for socio-demographic (gender, age, parental educational level, parental marital status, place raised, religion, sexual orientation, and current living situation), college-related predictors (expected to work on a student job, academic performance in high school, most important reason to go to university), perceived barriers for seeking treatment total score (in the models for individual barriers), country membership, past-year treatment, likelihood of seeking treatment in case of a future emotional problem, and stages of change.

Abbreviations: b, unstandardized regression coefficient; CI, confidence interval; OR, odds ratio; SE, standard error.

[a]To obtain pooled estimates of prevalence, each country was given an equal sum of weights.

[b]F test to evaluate joint significance of predictor block. df_n = numerator degrees of freedom; df_d = denominator degrees of freedom.

*$p < .05$.

treatment. An inspection of bivariate associations indicated that all of the barriers were significant predictors, both that most of them were associated with increased rather than decreased odds of seeking treatment (Table 4). Clinical characteristics, in comparison, were associated with significantly reduced odds of seeking treatment.

With regard to multivariate associations, the best-fitting regression model to predict reported likelihood to seek treatment was the additive model that included barriers to treatment, type of mental disorder, and suicidal thoughts and behaviors but not number of Mental Health Disorders (MHDs). All barriers other than "thinking it costs too much money" were significant but again with many more of them associated with elevated than reduced odds of seeking treatment. "Wanting to handle the problem on ones' own" was associated with the lowest odds of reported willingness to seek treatment (OR = 0.80) and "being unsure of where to go or who to see" with the highest odds (OR = 1.14). Clinical factors, in comparison, were consistently associated with significantly reduced odds of seeking treatment. These associations were significant for major depression (OR = 0.81), alcohol use disorder (OR = 0.75), 12-month suicidal plans (OR = 0.69), and 12-month suicide ideation without a plan (OR = 0.79).

4 | DISCUSSION

Only one fourth of college students stated that they would definitely seek treatment if they developed an emotional problem. This finding is indirectly consistent with research showing that a low proportion of college students with common mental disorders receive professional treatment (Bruffaerts et al., 2019). Responses to our questions about barriers provided some insights into the reasons for this low treatment rate.

The clearest pattern in the data was that attitudinal barriers are much more common than structural barriers, with the most commonly reported barriers being the preference to handle the problem on one's own, the wish to talk to friends or relatives instead, and being too embarrassed. Two of these three, preference to handle the problem on one's own and embarrassment, were the only two endorsed barriers associated with significantly reduced odds of reporting at least some intention to seek treatment in the future in the face of an emotional problem. This pattern is in line both with reports about barriers to seeking treatment among adults with mental disorders in the cross-national WMH surveys (Andrade et al., 2014) and with prior studies of barriers to treatment among students (Gulliver et al., 2010; Vidourek et al., 2014). This is an important pattern because these attitudinal barriers might be easier to overcome than structural barriers.

Most of the clinical characteristics considered here had significant and positive associations with most of the reported barriers and negative associations with intention to seek treatment. Furthermore, a positive dose–response relationship was found between the number of 12-month mental disorders the student had and the number of barriers the student endorsed. The sign of these associations might seem counterintuitive but is important to remember that the analysis excluded students who reported that they would definitely seek treatment if they had a future emotional problem. A separate analysis (results available on request) found, not surprisingly, that students with 12-month mental disorders were more likely than those without such disorders to report that they would definitely seek treatment. It is only among students who reported at least some hesitation in this regard that presence of mental disorders was positively associated with extent of hesitation to seek treatment. This suggests that reported hesitation in the presence of actual need indicates stronger reluctance to seek treatment than it does in the absence of actual need.

There was evidence in the multivariate analysis of clinical characteristics predicting reported barriers that certain barriers are more common among students with some clinical characteristics than others. Most notably, major depression and generalized anxiety disorder were the disorders associated with highest odds of reporting embarrassment as a barrier to treatment. In light of this fact, interventions designed to increase the use of mental health services might take individual clinical characteristics into consideration in tailoring strategies. It is noteworthy that the few empirical studies that evaluated acceptance-facilitating interventions (Baumeister et al., 2014, 2015; Ebert et al., 2015; Lin, Faust, Ebert, Kramer, & Baumeister, 2018) did not take differences of this sort into consideration.

Two of the three most often mentioned reasons for not wanting to seek help, the wish to solve problems on one's own, and being too embarrassed, were also the only barriers independently associated with reduced intention to seek treatment after excluding students who reported that they definitely would seek treatment. It is plausible to think in light of this finding that digital delivered self-help approaches, which do not require the patient to disclose their problems to others (Ebert et al., 2018; Ebert, Cuijpers, Muñoz, & Baumeister, 2017), might be ideally suited to students reporting such barriers, in which case offering such interventions might help increase treatment among this hard-to-reach segment of the student population. This possibility is in line with the findings of another paper in this issue in which approximately one third of the students participating in an internet-based treatment for social anxiety disorder indicated that they would be unwilling to use face-to face psychotherapy (Kählke et al., 2019). Future research should explore to which extend students that are not willing to seek help with traditional forms of health care can be reached using such digital approaches.

Results of the present study should be seen in the context of a range of limitations. First, as pointed out in other papers' of this issue (Auerbach et al., 2018; Bruffaerts et al., 2019; Alonso, Vilagut et al., 2018) and related recent papers (Alonso, Mortier et al., 2018), the response rate in the WMH-ICS surveys was suboptimal across virtually all sites. Although all reported results are weighted using poststratification weights to adjust for differences between survey respondents and nonrespondents based on socio-demographic or college-related characteristics that were made available from university officials, a potential selection bias regarding other variables cannot be excluded. Second, clinical characteristics were assessed using fully structured self-report scales rather than clinical interviews. Despite evidence for good concordance between diagnoses based on these

TABLE 4 Multivariate associations of perceived barriers and 12-month clinical characteristics predicting reported likelihood of seeking treatment in case of a future emotional problem (n = 9,939)

	Predictor distribution[a]	Bivariate models[b]	Multivariate model[c]
	% (*SE*)	OR (95% CI)	OR (95% CI)
II. Perceived barriers to seeking treatment			
You are not sure available treatments are very effective	-	1.06 (1.02–1.09)*	1.04 (1.01–1.08)*
You would want to handle the problem on your own	-	0.82 (0.79–0.85)*	0.80 (0.77–0.83)*
You would be too embarrassed	-	0.94 (0.91–0.97)*	0.91 (0.88–0.94)*
You would talk to friends or relatives instead	-	1.06 (1.03–1.09)*	1.07 (1.04–1.10)*
You think it costs too much money	-	1.07 (1.04–1.10)*	1.03 (1.00–1.07)
You are unsure of where to go or who to see	-	1.14 (1.10–1.17)*	1.14 (1.10–1.18)*
You anticipate problems with time, transportation, or scheduling	-	1.11 (1.08–1.14)*	1.07 (1.03–1.11)*
You are afraid it might harm your school or professional career	-	1.07 (1.04–1.10)*	1.05 (1.01–1.08)*
$F_{8,222}$[d]		-	38.53*
IV. Type of 12-month mental disorder			
Major depressive episode	18.1 (0.6)	0.76 (0.69–0.83)*	0.81 (0.71–0.91)*
Generalized anxiety disorder	16.1 (0.6)	0.94 (0.84–1.04)	0.98 (0.87–1.12)
Panic disorder	4.2 (0.3)	1.04 (0.77–1.40)	1.07 (0.77–1.50)
Broad mania	3.1 (0.3)	0.78 (0.63–0.97)*	0.89 (0.71–1.12)
Alcohol abuse or dependence	6.8 (0.4)	0.74 (0.64–0.85)*	0.75 (0.64–0.87)*
Drug abuse or dependence	3.1 (0.3)	0.72 (0.57–0.91)*	0.85 (0.66–1.08)
$F_{6,428}$[d]		-	5.95*
VI. 12-month suicidal thoughts and behaviors			
Planned or unplanned attempt	0.9 (0.1)	0.70 (0.56–0.87)*	0.80 (0.51–1.26)
Plan, no attempts	7.8 (0.4)	0.84 (0.73–0.96)*	0.69 (0.58–0.82)*
Ideation only	8.8 (0.4)	0.82 (0.75–0.90)*	0.79 (0.69–0.91)*
Never	82.6 (0.6)	(ref)	(ref)
F[d]		10.43*[e]	8.17*[f]

Note: All analyses were conducted in the subsample that would not definitely seek treatment in case of a future emotional problem (n = 9,939; 75.4% of the total sample).

Abbreviations: CI, confidence interval; OR, odds ratio; SE, standard error.

[a]To obtain pooled estimates of prevalence, each country was given an equal sum of weights.

[b]Each row shows a separate logistic regression model with likelihood of seeking treatment in case of a future emotional problem as the outcome variable, adjusting for country membership. Only bivariate associations for predictors that were included in the final multivariate model (i.e., the last column) are shown.

[c]The final (best-fitting) multivariate model adjust for socio-demographic (gender, age, parental educational level, parental marital status, place raised, religion, sexual orientation, and current living situation), college-related predictors (expected to work on a student job, academic performance in high school, most important reason to go to university), country membership, past-year treatment, stages of change, and for predictors shown in the rows.

[d] F test to evaluate joint significance of predictor block with numerator degrees of freedom, denominator degrees of freedom.

[e]The degrees of freedom for this F value are df_n = 3, df_d = 1023

[f]The degrees of freedom for this F value are df_n = 3, df_d = 580.

*$p < .05$.

measures and those based on blinded clinical evaluations in previous studies, no clinical reappraisal studies of these scales have as yet been carried out in sample of college students. As a result, we cannot exclude the possibility of bias in estimates of mental disorders. Third, we only assessed hypothetical intention to seek mental health treatment. Although this generally viewed as a useful best proximal indicator, it does not always translate directly to actual use of services (Webb & Sheeran, 2006). Therefore, we plan to use future prospective WMH-ICS data to examine the association of barriers reported in the baseline survey with subsequent treatment over the next year of college. Fourth, the changes of stages scale assessed the readiness to seek help in case of emotional or substance use problems in one item, and this item did also not differentiate between different types of emotional problems, for example, depression versus suicidal

behaviors. We cannot exclude that responses regarding stages of change might have differed if assessed separately for different types of emotional- or substance-related problems. Finally, we neither examined a broad range of potentially relevant predictors nor considered relevant interactions between different student characteristics in the prediction of intention to seek treatment. Expanded investigations of that sort are needed in future iterations of the WMH-ICS survey.

Within the context of these limitations, the study has a number of important implications. First, we showed clearly that the majority of students reported at least some hesitation to seek treatment for emotional problem and that psychological barriers are paramount, thereby arguing that the treatment gap that exists among college students cannot be closed entirely by doing nothing more than increasing access to treatment. Much existing implementation research designed to increase use of existing services has been limited to descriptive studies of barriers along the lines of those studied in this report (Bauer, Damschroder, Hagedorn, Smith, & Kilbourne, 2015). Future research needs to implement controlled trials to evaluate concrete strategies to reduce barriers in an effort to increase treatment. Failure to do this has resulted in criticisms of prior research on barriers to treatment lacking external validity (Pressler & Kaizar, 2013). We plan to implement such experiments in future iterations of the WMH-ICS surveys, as these surveys give us unique access to students with current mental disorders who have not sought treatment. Our initial efforts along these lines are described in another paper of this issue (Ebert et al., 2018).

DECLARATION OF INTEREST STATEMENT

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