



## Research paper

## Mental health problems in college freshmen: Prevalence and academic functioning



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## A B S T R A C T

**Background:** Mental health problems in college and their associations with academic performance are not well understood. The main aim of this study was to investigate to what extent mental health problems are associated with academic functioning.

**Methods:** As part of the World Mental Health Surveys International College Student project, 12-month mental health problems among freshmen (N = 4921) was assessed in an e-survey of students at KU Leuven University in Leuven, Belgium. The associations of mental health problems with academic functioning (expressed in terms of academic year percentage [or AYP] and grade point average [GPA]) were examined across academic departments.

**Results:** Approximately one in three freshman reports mental health problems in the past year, with internalizing and externalizing problems both associated with reduced academic functioning (2.9–4.7% AYP reduction, corresponding to 0.2–0.3 GPA reduction). The association of externalizing problems with individual-level academic functioning was significantly higher in academic departments with comparatively low average academic functioning.

**Limitations:** Limited sample size precluded further investigation of interactions between department-level and student-level variables. No information was available on freshman secondary school academic performance.

**Conclusions:** Mental health problems are common in college freshman, and clearly associated with lower academic functioning. Additional research is needed to examine the potentially causal nature of this association, and, if so, whether interventions aimed at treating mental health problems might improve academic performance.

## 1. Introduction

The college years are a developmentally crucial period when students make the transition from late adolescence to emerging adulthood (Arnett, 2000). Epidemiological studies suggest that 12–50% of college students meet criteria for one or more common mental disorders (Blanco et al., 2008; Hunt and Eisenberg, 2010; Verger et al., 2010). Differences between college students and their non-college peers are generally understudied but the available evidence shows that college students are somewhat at lower risk of mental disorders (Auerbach

et al., 2016; Blanco et al., 2008). In any case, mental disorders in early adulthood are associated with long-term adverse outcomes in later adulthood, including persistent emotional and physical health problems (Scott et al., 2016), relationship dysfunction (Kerr and Capaldi, 2011), and labor market marginalization (Niederkrötenhaler et al., 2014; Goldman-Mellor et al., 2014). These long-term adverse outcomes may be mediated by mental health problems that exist during the college years, as these years constitute a peak period for the first onset of a broad range of mental disorders (Ibrahim et al., 2013).

In Belgium, around roughly 70% of high school graduates attains

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higher education after graduating from high school (Dehon and Ortiz, 2008), but only 37–39% will succeed and even 28% will never obtain any diploma (Declercq and Verboven, 2014). Reasons for dropout are comparable to international literature, and include: lower socio-economic status (Walpole, 2003), male gender (Dehon and Ortiz, 2008), or the overall lack of social resources (Tinto, 1998). Also mental disorders may contribute to college dropout. Most of the research so far discussed the role of pre-matriculation mental disorders on subsequent academic functioning (Kosidou et al., 2014; Eisenberg et al., 2009; Gunnell et al., 2011). Previous studies show that college students with mental disorders are twice as likely to drop out without obtaining a degree (Kessler et al., 1995; Hartley, 2010). Consistent with this finding, between 15% and 23% of college students with mental disorders suggest that they confer a negative academic impact (Kernan et al., 2008). Studies that investigate the association between mental health distress and academic performance in college are much scarcer. Most evidence exists for the finding that depression and suicidal thoughts and behaviors are related to a lower grade point average (De Luca et al., 2016; Mortier et al., 2015; Hysenbegasi et al., 2005; Andrews and Wilding, 2004). In addition, most studies focus on the impact of just one disorder (e.g. Arria et al., 2015), leading to uncertainties as to the overall associations of a broad range of mental health problems with academic outcomes. Prior studies also mostly relied on self-reported academic performance or were based on reports from students presenting to the student (mental) health center.

We address these shortcomings in the current report by using data obtained in the Leuven College Surveys. These surveys were carried out as part of the International College Student project (WMH-ICS; [http://www.hcp.med.harvard.edu/wmh/college\\_student\\_survey.php](http://www.hcp.med.harvard.edu/wmh/college_student_survey.php)) of the WHO World Mental Health Surveys. The WMH-ICS aims to obtain accurate cross-national information on the prevalence, incidence, and correlates of mental, substance, and behavioral problems among college students worldwide, to describe patterns of service use and unmet need for treatment, to investigate the associations of these disorders with academic functioning, and to evaluate the effects of a wide range of preventive and clinical interventions on student mental health, social functioning, and academic performance. The current study builds on earlier work on academic functioning in college students (Mortier et al., 2015; Kiekens et al., 2016; Auerbach et al., 2016). The aim is to investigate the prevalence of mental health problems in the past year and the extent to which these problems in freshmen in the Leuven College Surveys were associated with objectively-assessed measures of academic performance obtained from official university records at the end of the freshman year. We also go beyond previous studies in investigating the possibility that these associations vary by academic departments (like bio-engineering, law school,...) using analysis methods that take into account clustering of students within departments so as to avoid over-generalizing conclusions.

## 2. Material and method

### 2.1. Procedures

As part of the WMH-ICS project, the Leuven College Surveys consist of a series of ongoing web-based self-report surveys of KU Leuven students. As Belgium's largest university, KU Leuven has an enrollment of over 40,000 students, with 7527 Dutch-speaking incoming freshmen aged 18 years or older in the 2012 and 2013 entering classes eligible for the baseline survey. The sample was recruited in three stages. In the first stage, the baseline survey was included in a routine medical check-up organized by the university student health center early in the academic year. All incoming freshmen from all university departments were sent a standard invitation letter for the check-up. Students who arrived at their check-up were invited to complete the study survey on a desktop computer in the waiting room of the student health center. In a second stage, non-respondents to the first stage were personally

contacted using customized emails containing unique electronic links to the survey. The third stage was identical to the second stage, but additionally included an incentive to complete the survey (i.e., a raffle for 20 euro store credit coupons). Each stage used reminder emails, setting the maximum amount of contacts at eight. The study's protocol was approved by the University Hospital Leuven Biomedical Ethical Board (B322201215611) and by the Belgian Commission for the Protection of Privacy (VT005053139). We used the code for a pure epidemiological study (in contrast to an intervention study) and have permission to include baseline samples until September 2018. The ethical board adopts the International Conference on Harmonisation – Guidelines of Good Clinical Practice) principles. Students who reported any 12-month suicidality or non-suicidal self-injury were presented with links to local mental health resources.

We obtained freshman departmental status from the KU Leuven administration office. The KU Leuven is divided in 40 departments based on the academic content offered to the enrolled students within that department (e.g., bio-engineering, law, romance languages – for a full list, see [https://www.kuleuven.be/english/faculties\\_schools](https://www.kuleuven.be/english/faculties_schools)). A department is a micro-unit within the larger campus environment, with shared structural (e.g., classrooms), interpersonal (e.g., sense of belongingness), and social (e.g., sports participation) elements. The clustering of students in academic departments enabled us to estimate multilevel models that investigated the possibility of between-department variability in prevalence and associations of 12-month mental disorders with subsequent academic performance. Such an approach may be especially valuable given that students' wellbeing and performance are known to be linked to peer-group characteristics, student–faculty interactions, and general institution characteristics (Astin, 1993; Fink, 2014).

### 2.2. Measures

The WMH-ICS survey instrument was developed by the World Mental Health Survey Consortium and includes multiple screening instruments for a wide range of mental health problems. For each respondent, survey data were linked to unique administrative unit-level data obtained from the KU Leuven students' administration office, including academic year functioning, and sociodemographic variables.

#### 2.2.1. Sociodemographic variables

Socio-demographics included gender, age, and parental educational level. Parental education was divided in three levels: both parents completed a high academic degree (i.e., college bachelor degree or more), only one parent obtained a high academic degree, and neither parent obtained a high academic degree. Parental education was included as covariate because it is a reliable proxy variable for socioeconomic status (Hauser and Warren, 1997), as well as for young people's educational success and achievement-related behaviors (Eccles et al., 2004).

#### 2.2.2. Mental health problems

Mental health problems were assessed using the Global Appraisal of Individual Needs Short Screener (GAIN-SS), a well-validated screening instrument for 12-month mental health problems in adolescent and adult populations (Dennis et al., 2006). The 20-item instrument is developed to provide a quick and accurate screening of emotional and behavioral problems in order to identify groups of adolescents and young adults with a possible need for referral or treatment, and thus to aid in clinical referral, treatment planning, and program evaluation (Dennis et al., 2006). It is used by more than 1700 agencies in both clinical services and research communities (Conrad et al., 2012). The GAIN-SS is one of the few screening instruments that effectively addresses mental health and substance abuse problems. The instrument has been used in a variety of populations (primary care, school, criminal justice system, homeless populations, college populations, and

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