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ORIGINAL RESEARCH

University students and study habits

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Objectives: The objective of this study was to understand the variables or study habits that inform study in undergraduate and postgraduate students attending Trinity College Dublin.

Methods: A descriptive, cross-sectional anonymous online survey was used to gather data to explore student study habits. Survey 1 was completed by participants in April 2019 and survey 2 was completed by participants in April 2020, during the COVID-19 restrictions.

Results: A total of 1557 participants completed survey 1 in 2019, and 1793 participants completed survey 2 in 2020. In both surveys a majority reported using caffeine, library study, sleep pattern adjustment and excercise to aid academic performance. Survey 2 participants reported COVID-19 resulted in increased difficulty studying (91%). In particular loss of structure and routine was negatively impacted by the pandemic (92%), and increased feelings of stress were reported (75%).

Conclusions: Our study suggests a potential role of the college environment as a target for the implementation of interventions to promote student learning, healthy study habits and well-being. The global pandemic has resulted in additional challenging demands for universities to serve an essential role in supporting college students study habits.

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Key words: Covid-19, university students, study habits, mental health.

Introduction

The university years are a unique time whereby significant mental health difficulties emerge or when pre-existing difficulties, yet unmasked, become evident as the scaffolding of the family structure is removed (Browne, 2017). This vulnerable stage marks a significant life transition for young adults as they navigate from their former structured family setting to an independent autonomous university life (Browne, 2017). Studies have demonstrated that mental ill health impacts negatively on academic performance, course completion rates and longer-term issues entering the workforce (Browne, 2017). Thus, an important aspect of career success is dependent on well-being (Haase et al., 2012).

Academic routines are important coping mechanism for young adults with mental health issues (Lee, 2020). In addition, research has indicated that integration in physical social networks is critical for success in academic settings and that some students fail in their academic achievements not solely due to individual abilities or study habits, but because they fail to benefit from the network of positive social relationships, as most students perform better when they work together (Stadtfeld et al., 2019). Increasingly, studies are showing that reduced social interactions are negatively impacting on students' mental health and academic success (Elmer et al., 2020). The current dissolution of the physical and social environment of universities due to public health restrictions related to COVID-19 creates issues around study motivation, self-discipline and feelings of isolation (Raaper & Brown, 2020). The loss of routine reduced social and physical contact with others, and a sense of isolation from the rest of the world has been shown to cause boredom, frustration and distress (Brooks et al., 2020). The experience of loneliness, social isolation and social disconnection has been linked with adverse mental health outcomes, including increased risk of depression and early mortality (Baumeister & Leary, 1995; Holt-Lunstad et al., 2010). More recently, studies have shown the impact of the pandemic in China during the early stages has been associated with increased psychological distress, particularly amongst females and students (Panchal et al., 2020; Wang et al., 2020).

COVID-19 has resulted in unprecedented societal changes in Ireland and has affected teaching and learning in all higher education institutions worldwide, with infection control policies mandating the closure of campuses (IAU, 2020; Rapanta et al., 2020). Universities have transitioned to remote learning to create distinctive learning environments with the help of digital

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technologies (IAU, 2020; Rapanta et al., 2020). Curtailed university campus activity has resulted in significant curricular and examination restructuring in order to facilitate the continued provision of education (O'Byrne et al., 2020). This has dramatically altered the familiar university teaching environment and learning experience for students, alongside the difficulties imparted by government enforcing nationwide movement constraints and social distancing orders. The long-term consequences are yet unknown but are expected to negatively impact student learning and mental health (Kaparounaki et al., 2020; Savage et al., 2020; Wang et al., 2020).

The effects of this global pandemic on higher education institutions and students are multifaceted and complex, with students facing an increasingly uncertain environment. In addition to the transition to online learning, students face uncertainty regarding the future applications to university courses, classroom teaching, examinations, study abroad programmes, internships, campus accommodation and future labour market participation (Aucejo et al., 2020).

The objective of this study was to understand the variables or study habits that inform study in students attending Trinity College Dublin, an urban university in Dublin, in the month prior to the end of term examinations in April 2019 (survey 1). The survey was repeated a year later, in April 2020, during COVID-19 restrictions. Survey 2 also explored whether university student's study habits were positively and negatively impacted in the wake of the onset of the global pandemic. To our knowledge, this is the first survey to examine student study habits in those attending Trinity College Dublin, the University of Dublin.

Method

Participants and study design

A descriptive, cross-sectional survey was used in this study to gather data to explore student study habits. This method was chosen as it is useful for rapidly collecting data from participants in our target sample (Ball, 2019). Survey questionnaires online are often preferred by respondents, who can answer at their own convenience (Callegaro et al., 2015). Students received an email to voluntarily participate in the survey. This was a convenience sample comprising only of registered undergraduate and postgraduate students enrolled at Trinity College Dublin. The questionnaire was an anonymous online survey in English, emailed to all students in Trinity College Dublin. Prior to undertaking the online survey, participants were requested to read an information leaflet about the study and complete an online consent form. Participation in the survey was optional. Students were incentivised to participate with an opportunity to enter a lottery for university event tickets. The lead researcher was available to be contacted to address any questions raised by participants completing the questionnaire. All data were stored in a secure offline database for later analysis by the lead researcher. Care was taken not to store IP addresses from participants in the dataset. Contact information needed for distribution of the ticket prize was stored in a separate data file and remained confidential throughout the study.

Survey

The study data were collected from participants using a newly devised questionnaire by the research group. To reach a representative sample, our questionnaire was advertised by emailing all registered undergraduate and postgraduate students attending Trinity College Dublin. There were two questionnaires used in data collection in this study. The first questionnaire collected data on study habits (survey 1). Questions were of a multiple-choice format and collected data on demographics, background characteristics, including university faculty, scheduled and non-scheduled academic hours, mental health issues and academic difficulties including repeating an exam or university year. Furthermore, the study collected data on participants' use of study strategies to improve learning such as location (library), change in behaviours (adjusting sleep pattern, diet, exercising, meditating and substance use) and asked if participants accessed formal college supports (e.g. occupational therapy). This online questionnaire composed of multiple-choice questions and was launched on 1 April 2019 and remained open for 7 days. The survey took an average of 4 minutes to complete. The data collection period coincided with the final week of the university teaching term in 2019, 3 weeks prior to the end of year assessments and examinations.

The second online questionnaire conducted 1 year later in 2020 was advertised by emailing all registered undergraduate and postgraduate students attending Trinity College Dublin. Like the first survey in 2019, students were requested to consent and voluntarily participate in the study. This questionnaire was launched following the closure of the university campus on 12 March 2020 due to the global pandemic. It was available to participate from 20 April 2020 and remained open for 7 days. The second questionnaire collected the same data, as the first questionnaire, on student study habits. There were additional multiple-choice questions exploring the negative impact of COVID-19 on students' study behaviour, including inadequate access to internet or lack of appropriate space to study, loss of daily structure and routine, sleep difficulties, increased feelings of stress and loneliness, restrictions on exercise,

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Table 1. *Demographic characteristics*

	Survey 1: 2019 (% of sample)	Trinity 2019* (% students)	Survey 2: 2020 (% of sample)	Trinity 2020* (% students)
	1557 (8.4%)	18 407	1793 (9.5%)	18 941
Undergraduate	80%	72%	86%	71%
Postgraduate	20%	28%	14%	29%
Male	34%	40%	29%	40%
Female	64%	60%	70%	60%
Other	7%	—	4%	—
Irish	78%	72%	80%	72%
EU non-Irish	11%	10%	10%	10%
North American	5%	7%	4%	7%
Other (non-E.U., non-North American)	8%	10%	6%	11%
Arts, Humanities, Social Science	45%	41%	44%	41%
Health Sciences	21%	24%	24%	23%
Engineering, Maths Science	30%	25%	30%	25%
Multi-faculty	4%	10%	0%	11%

*Annual Equality Monitoring report Trinity College Dublin 2019/2020.

additional burden as a carer and mental health issues. There were five additional multiple-choice questions exploring the positive impact of COVID-19 on student's study behaviour, including reduced commuting time, online teaching, change in exam format to assignments, quieter study area and less interaction with peers (survey 2). There was a protocol amendment with additional questions added to survey 2. The research group obtained approval from the Ethics and Research Committee to gather additional data on the student population in the context of the sudden onset of the COVID-19 pandemic. The data collected were analysed descriptively to determine participants' study habits.

Results

All undergraduate and postgraduate students on the university campus were invited to participate in the survey in 2019 ($n = 18\ 407$) and the survey in 2020 ($n = 18\ 943$). A total of 1557 participants completed survey 1 in 2019. A total of 1793 participants completed survey 2 in 2020. An exclusion criterion was not being a registered student at the university, Trinity College Dublin. Both studies achieved similar numbers in terms of participants and their demographic characteristics (Table 1). The participants in our sample were largely representative of the current student population (Table 1). Most students were between 18 and 23 years old (survey 1, 81%, $n = 1217$ and survey 2, 85%, $n = 1418$).

Students across both survey groups had largely similar onsite timetabled demands and face-to-face learning, with 42% of participants in both survey groups reporting an average of 11–20 scheduled formal contact hours per week in university, to include tutorials, lectures and laboratory classes, prior to the COVID-19 pandemic.

Mental health illness impacting on student's ability to study was reported in 46% of participants in survey 1 and in 51% of participants in survery 2. The number of students who needed an academic extension were broadly similar in both groups (33% in survey 1 and 30% in survey 2). Seventeen per cent of participants reported repeating an examination in survey 1 and 15% of participants in survey 2. 5% of participants reported to repeating a university year in survey 1 and 4% in survey 2. Of those students repeating a university year, 37% of participants in survey 1 citied mental illness as a contributing factor which compared with 44% of participants in survey 2 (Table 2).

Most students reported adjusting their behaviour to aid academic performance. In survey 1, 89% of students reported changing their study environment using the Trinity campus library. In survey 2, 78% reported changing their study environment. In survey 1, 67% of participants indicated exercise as a factor aiding study habits and this compared with 62% in survey 2. The rates of caffeine, alcohol, cannabis and prescription stimulant medication use were similar across both groups (Table 3). Seven per cent of students reported use of stimulant medication in survey 1, of which 41% of participants reported using prescribed medication. In survey 2, 5% of participants reported stimulant use. Thirteen percent of students reported accessing

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Table 2. *Timetable demands, study hours and mental health*

Formal timetabled hours/week	Survey 1: 2019	Survey 2: 2020
0	3%	5%
1–10	25%	20%
11–20	42%	42%
21–30	20%	25%
>30	9%	8%
Hours self-directed study/week	**Survey 1: 2019**	**Survey 2: 2020**
0	1%	1%
1–10	37%	32%
11–20	35%	41%
21–30	17%	16%
>30	11%	10%
	Survey 1: 2019	**Survey 2: 2020**
Mental illness negatively impacting on study	46%	51%
Extension needed (Yes)	33%	30%
Repeat of exam (Yes)	17%	15%
Repeat of year (Yes)	5% (37% cited mental illness)	4% (44% cited mental illness)

formal college supports, such as Occupational Therapy and Student Learning and Development Services in survey 1, which this figure was 9% in survey 2 (Table 3).

COVID-19 and study habits

Survey 2 participants answered additional questions about the negative and positive impact of the COVID-19 pandemic on their learning and study ability (Fig. 1). It was noted that COVID-19 resulted in increased difficulty for students studying during this time (91%). Loss of structure and routine were identified as significant issues impacting students' ability to study (92%). Another factor commonly endorsed by students included increased feelings of stress (75%). Approximately half of all participants (56%) endorsed increased feelings of loneliness and the onset of sleep difficulties since the emergence of COVID-19. Fifty-four per cent of participants reported lack of access to an appropriate study space. Forty-one per cent of participants reported poor mental health as having an impact on their study, while 30% reported restrictions on exercise and 22% reported inadequate internet access as being a factor. The additional burden of being a carer was reported by 13% of participants (Fig. 1).

Less than 1% ($n = 161$) reported that COVID-19 did not negatively impact on their ability to study. The benefits and positive factors included spending less time commuting ($n = 108$), a change in the exam structure to assignments or online formats ($n = 65$), having to interact less with others ($n = 81$) and access to online teaching resources ($n = 54$) (Fig. 2).

Table 3. *Adjustment of study behaviour to aid academic performance*

Study behaviours adjusted	Survey 1: 2019	Survey 2: 2020
Caffeine	98.6%	98.1%
Study in library	89%	78%
Adjust sleep pattern	79%	66%
Exercise	67%	62%
Adjust diet	47%	26%
Meditation	23%	15%
Access formal support (e.g. O.T)	13%	9%
Use of stimulant medication (of this prescribed by a doctor)	7% (41%)	5% (56%)
Alcohol and cannabis	3%	4%

Discussion

Aside from the challenges for some students with mental health vulnerabilities, there are numerous determinants of academic success in university, including

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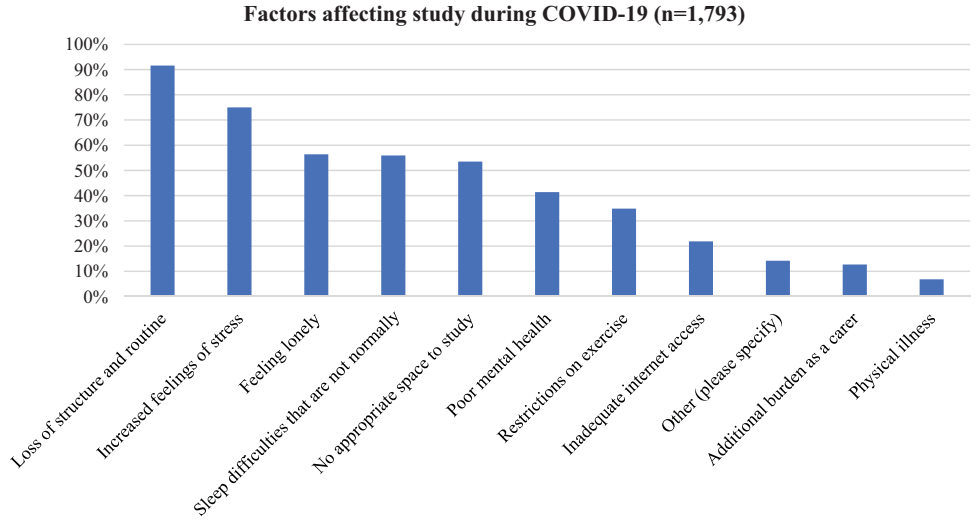


Fig. 1. Negative impact of COVID-19 on students' ability to study.

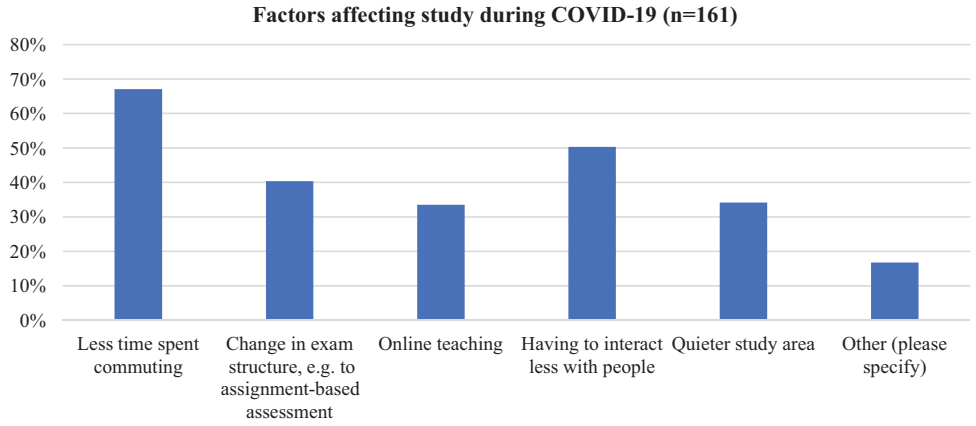


Fig. 2. Positive impact of COVID-19 on students' ability to study.

prior academic achievement, personality traits, and differences in cognitive and behavioural strategies employed during learning (Bickerdike et al., 2016). Students engage in a variety of study strategies to aid academic learning, including environmental (e.g. dedicated study spaces in libraries), behavioural strategies (e.g. adjusting sleep, diet and exercising) and use of substances, including caffeine, nicotine, alcohol, cannabis and prescribed stimulant medication (e.g. methylphenidate). There is emerging research of use of cognitive enhancers (e.g. methylphenidate) for learning purposes, with more studies conducted on the university student population in (mostly Western) Europe (Schelle et al., 2015; Singh et al., 2014).

In tertiary education, it is paramount that organised, healthy study strategies are promoted as part of a supportive university environment. It is also important for the university sector to understand what drives healthy study behaviours and impacting factors, such as library access, exercise, use of substances such as caffeine, alcohol or drugs and access to formal supports. This is particularly pertinent in the current climate of COVID-19.

One in five students worldwide have experienced one or more diagnosable mental health disorders (Auerbach et al., 2016). In the Trinity student population, over 20% of new entrants to the university are by an alternative admission route, to include students with a disability (Disability Access Route to Education Scheme, DARE scheme), students from socio-economically disadvantaged backgrounds (Higher Education Access Route, HEAR scheme) and mature students (*Annual Equality Monitoring Report 2017/18*, 2017). Notably, there has been a significant increase in mental health illness as the single largest disability category for registering with disability supports in Trinity College Dublin (Emon & Timonen, 2019). In addition, a 2019 study completed by the Union of Students in Ireland revealed mental health difficulties are common in Irish

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third-level institutions (Price & Smith, 2019). These findings are also reflected in our survey. Since the onset of COVID-19, students identified mental health difficulties as an increasingly problematic issue impacting on study ability (X. Wang et al., 2020).

Our findings suggest that mental health difficulties are an issue for study and academic progression, whereby 46% of participants in survey 1 and 56% of participants in survey 2 reported mental illness negatively impacted on study behaviours. Mental illness can impede university-to-work transitions, damage early stages of career path formation and the acquisition of work values, work ethics and core work skills (McAuliffe et al., 2012). Recent studies from Chinese colleges indicate COVID-19-related stressors were positively associated with anxiety symptoms in university students (Cao et al., 2020). Similar studies have shown that longer durations of lockdown periods are specifically associated with poorer mental health. A recently conducted national survey reveals the detrimental effects of the pandemic on mental health is more deleterious on younger as compared to older people ("Wave 3 Results – NUI Galway," 2020). It is therefore important that universities develop clear public health messaging to address collegiate mental health issues which have been exacerbated by disruptions in education, fear of academic loss and career trajectory in light of the COVID-19 pandemic (Hasan & Bao, 2020; Zhai & Du, 2020).

Our survey found that students adopted many strategies to facilitate their study. The use of caffeine was high at 98% across the two survey periods. A high proportion of students reported using the library, exercising and the use of meditation to facilitate study. This survey found rates of between 5 and 7% for the use of stimulant medication to facilitate study of which approximately half was prescribed by a doctor. These findings are at the lower end of internationally reported stimulant use in university settings, but it is notable that half was not prescribed by a doctor. The dearth of options to access treatment for adult ADHD might explain these low rates. However, it is important to take into consideration studies which report more stress and utilisation of substances as a coping mechanism in students who use cognitive enhancers (Sattler & Wiegel, 2013; Schelle et al., 2015). In addition, this survey noted a small proportion of students reporting the use of alcohol to aid study. Whilst this number is small, it does not reflect national trends related to the use of alcohol since the pandemic as per the Central Statistics Office April 2020 Survey, which revealed an increase in alcohol consumption (30.4%) amongst the age group of 18–34 years ("Changes in Consumption – CSO – Central Statistics Office," 2020).

The consequences of the COVID-19 pandemic and the implications of a changed university environment to include face-to-face interaction with educators or peers and closure of protected study spaces, such as libraries and campus facilities such as gyms, compound difficulties for students. It is possible that the results in survey 2 were impacted on by the abrupt closure of the library facilities from 12 March 2020 and the implementation of the national Level 5 COVID-19 government restrictions. It is noteworthy that 11% of students in survey 2 reported an additional psychological burden as a carer, with possible reasons for this including, issues with access to childcare or carer responsibility of an elderly relative. This is an important factor to consider in future planning given the current limitations to accessing childcare and community supports (O'Brien, 2017).

A considerable number of students in survey 1 (13%) reported availing of formal university study supports including the Disability Service, Occupational Therapy and Student Learning Development services and Mindfulness. This number was 9% in survey 2 although these services did continue to operate using technology platforms including Microsoft Teams and telemedicine. It is possible that students' may have preference for engaging with supports in person or there may be a more general reduction in help-seeking behaviour during COVID-19 as noted in those accessing medical care during the pandemic (Kam et al., 2020; Liang et al., 2020).

Although a small proportion of students (less than 1%) dismissed COVID-19 as having a negative impact on their ability to study, this group may represent some individuals who have underlying avoidant behaviours or potential difficulties engaging interpersonally due to anxiety or neurodevelopmental disorders. In these cases, protracted periods of social isolation may worsen such pathologies and heighten these behaviours as social restrictions ease.

Our study suggests that significant numbers of students are struggling with loss of routine, social isolation and sleep disturbance, since the implementation of restrictions associated with COVID-19 and that this has impacted on mental health. These findings have implications for how academic teaching is planned into the future, particularly if in the short to medium term, teaching will be predominantly online. The consideration of scheduled real-time, interactive online classes in the morning may address routine-related difficulties as well as sleep hygiene. Faculty and staff could consider offering virtual office hours to students to maintain connection and help students address academic concerns caused by loss of the routine classroom teaching (Garfin et al., 2020; Zhai & Du, 2020). Educators could consider developing online events, particularly

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for newly enrolled students, to support the development of student social networks, health promotion strategies such as encouraging healthy routines to include exercise, sleep hygiene and psychoeducation around study habits and stress management, to help mitigate social isolation and academic anxieties.

The COVID-19 pandemic has demolished the familiar university environment, daily routine and support structure for students. Most institutions have been confronted with an acute and unprepared shift to online teaching, learning and assessment, and some students are suffering from psychological distress due to ineffective e-learning systems (Hasan & Bao, 2020; IAU, 2020). The response of universities to transition learning to virtual forums is laudable; however, the impact of this is yet to be fully understood, with some research suggesting that a different pedagogy is required for distance teaching and learning (IAU, 2020). The exceptional global situation has also provided new opportunities for distance teaching and learning, creating more flexible educational possibilities and exploration of blended or hybrid learning (Zhai & Du, 2020). The numerous benefits are justifiable to include increased efficiency, cost reduction, scalability, consistency and accessibility to improve student performance (Ssekakubo et al., 2011). The COVID-19 crisis has ignited a plethora of advice aimed at educators to focus on tools and materials they can use to replace face-to-face classes and support the study behaviours of their students away from the university environment (Rapanta et al., 2020).

It is appropriate that university is seen not only as a place of education but also as a prime resource for promoting health, well-being and equality within society (Tsouros et al., 1998). Studies are now revealing that mental health well-being has reduced in students during the pandemic (Savage et al., 2020). An understanding of the factors that determine academic progression is therefore important. Tertiary education settings have the capacity to disseminate valuable, intensive and multifaceted health promotion policies and strategies to many individuals engaged in a single setting (Dietz et al., 2020). The interruption of academic progression incurs significant personal, educational and financial implications on the student, but also on the institution and society (Eisenberg et al., 2009). Disruption to student education may delay graduation and undermine their competitiveness in the job market. There are broader financial implications for the university sector, whereby student retention and graduation statistics are regarded as key performance indicators of the institution and important marketing strategies for the lucrative overseas student market. At a societal level, the ramifications include future downstream costs to mental health systems from lack of early intervention and lost investment through increased rates of course non-completion and lower lifetime earnings (Lipson et al., 2019).

Limitations

The results of this study should be interpreted considering a few limitations. First, our findings are based on data from a restricted sample of participants, registered university students at Trinity College Dublin only. In addition, we were not able to determine if the same students participated in survey 1 and survey 2 due to the anonymisation of student identification and we did not have information on pre-university college functioning in relation to students' study habits. For these reasons, it is not possible to extend our findings to represent all university students throughout Ireland. Although non-response bias might limit the generalisability of our findings, the study showed representativeness of our targeted sample. Secondly, due to the convenience selection sample utilised by survey questionnaires, we cannot out rule selection bias in the opinions or practices of participants, where those, for example, most affected by mental illness may reply. However, the potential impact of mental illness was not inherent in the study title or the purpose of the study. This survey did not include clinical and instrumental examinations.

There are limitations in interpreting the collected data given this is a self-report questionnaire. The results of the second survey were generated nearly 6 weeks after the government implemented dramatic COVID-19 restrictions; therefore, the results do not capture or reflect the evolving trends in relation to the impact of ongoing social restrictions, closure of the university campus and adaption to online learning for students, at time of writing. As such this study should be considered a pilot study reporting on the experiences of the participants.

Conclusions

Despite the limitations, these data are relevant and very representative of the Trinity student body. Our study suggests a potential role of the college environment as a target for the implementation of interventions to promote student learning, healthy study habits and well-being. The first survey completed in 2019 raised questions regarding the importance of identifying and supporting students who are at risk of developing unfavourable approaches to academic tasks or struggle with mental health difficulties, as well as understanding the factors that drive study. This raised considerations in relation to reviewing policies and pathways in place on campus to provide additional direction and professional support to vulnerable students, such as

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healthy study campaigns, greater access to library space and access to mental health support.

The second survey in 2020 echoes these considerations and whilst not directly comparable, it now dictates a significantly larger challenge going forward. The global pandemic has resulted in additional challenging demands for universities to serve an essential role in supporting college students' mental and physical health and provide ongoing education and a safe physical socially distanced space for an active real-time university experience. Many higher education institutions are still coping with the active urgency of the evolving pandemic in planning for supporting their students, with online modes of teaching and learning for students now part of a common discourse among university staff (Raaper & Brown, 2020). Research evidence now shows that while online courses can provide increased access to higher education, they also lack the essential student-centred academic support needed to nurture study habits required by some students, of which would be otherwise accessible on the university campus (Bettinger & Loeb, 2017). Educators now need to clearly map out formal university support services available to students and keep reminding students to seek out this support (Raaper & Brown, 2020).

Higher educational institutions need to adapt and develop mechanisms through which they can systematically engage with and reach out to all students, either physically or using technology. This will aid to promote new forms of positive engagement and social resilience which will benefit both students and their learning (Raaper & Brown, 2020). New creative approaches may need to be developed, whereby educators become more integrated as part of online student support networks, by facilitating online morning classes, mentorship programmes, health promotion talks or online social events. Further studies with larger samples from different universities nationally are needed to monitor and capture the outcomes of prolonged university closures, social distancing measures impacting on students' study habits and academic progression in higher educational institutes and the impact the pandemic itself will have on the future of our young adult's mental health in Ireland.

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Conflicts of interest

The authors declare that they have no conflict of interest.

Ethical standards

The authors assert that all procedures contributing to this work comply with the ethical standards of the relevant national and institutional committee on human experimentation with the Helsinki Declaration of 1975, as revised in 2008. The study protocol was approved by the Trinity College Dublin School of Medicine Research Ethics Committee, Dublin, Ireland.

Supplementary material

To view supplementary material for this article, please visit https://doi.org/10.1017/ipm.2021.28

References

Annual Equality Monitoring Report, 2017/18 (2017). *Trinity College Dublin The University of Dublin*. Ireland: Dublin.

Aucejo EM, French J, Ugalde Araya MP, Zafar B (2020). The impact of COVID-19 on student experiences and expectations: evidence from a survey. *Journal of Public economics* **191**, 104271. https://doi.org/10.1016/j.jpubeco.2020.104271

Auerbach RP, Alonso J, Axinn WG, Cuijpers P, Ebert DD, Green JG, *et al.* (2016). Mental disorders among college students in the WHO World Mental Health Surveys. *Psychological Medicine* **46**, 2955–2970. https://doi.org/10.1017/S0033291716001665

Ball HL, 2019. Conducting online surveys. *Journal of Human Lactation* **35**, 413–417. https://doi.org/10.1177/0890334419848734

Baumeister RF, Leary MR (1995). The need to belong: desire for interpersonal attachments as a fundamental human motivation. *Psychological Bulletin* **117**, 497–529.

Bettinger E, Loeb S (2017). *Promises and pitfalls of online education (Economic Studies No. 2), Evidence Speaks Reports*. Brookings: Washington DC, USA.

Bickerdike A, O'Deasmhunaigh C, O'Flynn S, O'Tuathaigh C (2016). Learning strategies, study habits and social networking activity of undergraduate medical students. *International Journal of Medical Education* **7**, 230–236. https://doi.org/10.5116/ijme.576f.d074

Brooks SK, Webster RK, Smith LE, Woodland L, Wessely S, Greenberg N, Rubin GJ (2020). The psychological impact of quarantine and how to reduce it: rapid review of the evidence. *The Lancet* **395**, 912–920. https://doi.org/10.1016/S0140-6736(20)30460-8

Browne V (2017). Under the Radar: the Mental Health of Australian University Students. *Journal of the Australia and New Zealand Student Services Association* **25**, 51–62. https://doi.org/10.30688/janzssa.2017.16

Callegaro M, Manfreda KL, Vehovar V (2015). *Web Survey Methodology*. SAGE: London, UK

Cao W, Fang Z, Hou G, Han M, Xu X, Dong J, Zheng J (2020). The psychological impact of the COVID-19 epidemic on college students in China. *Psychiatry Research* **287**, 112934. https://doi.org/10.1016/j.psychres.2020.112934

Changes in Consumption - CSO - Central Statistics Office [WWW Document] (2020). Soc. Impact COVID-19 Surv. April 2020. URL https://www.cso.ie/en/releasesandpublications/ep/p-sic19/socialimpactofcovid-19surveyapril2020/changesinconsumption/ (accessed 6.3.20).

Dietz P, Reichel JL, Edelmann D, Werner AM, Tibubos AN, Schäfer M, Simon P, Letzel S, Pfirrmann D (2020). A systematic umbrella review on the epidemiology of modifiable health influencing factors and on health promoting interventions among university students. *Frontiers in Public Health* **8**, 137. https://doi.org/10.3389/fpubh.2020.00137

Eisenberg D, Golberstein E, Hunt JB (2009). Mental health and academic success in college. *The B E Journal of Economic Analysis & Policy* **9**. https://doi.org/10.2202/1935-1682.2191

Elmer T, Mepham K, Stadtfeld C (2020). Students under lockdown: comparisons of students' social networks and mental health before and during the COVID-19 crisis in Switzerland. *PLoS One* **15**, e0236337. https://doi.org/10.1371/journal.pone.0236337

Emon A, Timonen V (2019). Graduate attributes: social constructions and lived experience of university students in Ireland. *Journal of Education Culture and Society* **10**, 133–147. https://doi.org/10.15503/jecs20192.133.147

Garfin DR, Silver RC, Holman EA (2020). The novel coronavirus (COVID-2019) outbreak: amplification of public health consequences by media exposure. *Health Psychology* **39**, 355–357. https://doi.org/10.1037/hea0000875

Haase CM, Heckhausen J, Silbereisen RK (2012). The interplay of occupational motivation and well-being during the transition from university to work. *Developmental Psychology* **48**, 1739–1751. https://doi.org/10.1037/a0026641

Hasan N, Bao Y (2020). Impact of "e-Learning crack-up" perception on psychological distress among college students during COVID-19 pandemic: A mediating role of "fear of academic year loss." *Children and Youth Services Review* **118**, 105355. https://doi.org/10.1016/j.childyouth.2020.105355

Holt-Lunstad J, Timothy S, Layton B (2010). Social relationships and mortality risk: a meta-analytic review. *PLOS* **7**.

IAU (2020). *Covid-19: higher education challenges and responses [WWW Document]*. International Association of Universities (https://www.iau-aiu.net/Covid-19-Higher-Education-challenges-and-responses). Accessed 15 November 2020.

Kam AW, Chaudhry SG, Gunasekaran N, White AJ, Vukasovic M, Fung AT (2020). Fewer presentations to metropolitan emergency departments during the COVID-19 pandemic. *Medical Journal of Australia* **213**, 370–371. https://doi.org/10.5694/mja2.50769

Kaparounaki CK, Patsali ME, Mousa D-PV, Papadopoulou EVK, Papadopoulou KKK, Fountoulakis KN (2020). University students' mental health amidst the COVID-19 quarantine in Greece. *Psychiatry Research* **290**, 113111. https://doi.org/10.1016/j.psychres.2020.113111

Lee J (2020). Mental health effects of school closures during COVID-19. *The Lancet Child & Adolescent Health* **4**, 421. https://doi.org/10.1016/S2352-4642(20)30109-7

Liang S-W, Chen R-N, Liu L-L, Li X-G, Chen J-B, Tang S-Y, Zhao J-B (2020). The Psychological Impact of the COVID-19 Epidemic on Guangdong College Students: the Difference Between Seeking and Not Seeking Psychological Help. *Frontiers in Psychology* **11**, 2231. https://doi.org/10.3389/fpsyg.2020.02231

Lipson SK, Abelson S, Phillips M, Eisenberg D (2019). *Investing in Student Mental Health. Opportunities & Benefits for College Leadership*. American Council on Education: Washington.

McAuliffe D, Boddy J, McLennan V, Stewart V (2012). Keeping the door open: exploring experiences of, and responses to, university students who disclose mental illness. *Journal of Social Inclusion* **3**, 117. https://doi.org/10.36251/josi.46

O'Brien C (2017). 'Childcare is a huge issue for parents going to college' [WWW Document]. The Irish Times. (https://www.irishtimes.com/news/education/childcare-is-a-huge-issue-for-parents-going-to-college-1.2993828). Accessed 7 April 2021).

O'Byrne L, Gavin B, McNicholas F (2020). Medical students and COVID-19: the need for pandemic preparedness. *Journal of Medical Ethics* **46**, 623–626. https://doi.org/10.1136/medethics-2020-106353

Panchal N, Kamal R, Orgera K, Muñana C, Apr 21, P.C.P., 2020 (2020). The Implications of COVID-19 for Mental Health and Substance Use. KFF. (https://www.kff.org/coronavirus-covid-19/issue-brief/the-implications-of-covid-19-for-mental-health-and-substance-use/). Accessed 27 May 2020.

Price A, Smith HA (2019). *USI National Report on Student Mental Heatlh in Third Level Education*. Union of Students in Ireland: Dublin.

Raaper R, Brown C (2020). The Covid-19 pandemic and the dissolution of the university campus: implications for student support practice. *Journal of Professional Capital and Community* **5**, 343–349. https://doi.org/10.1108/JPCC-06-2020-0032

Rapanta C, Botturi L, Goodyear P, Guàrdia L, Koole M (2020). Online university teaching during and after the Covid-19 crisis: refocusing teacher presence and learning activity. *Postdigital Science & Education* **2**, 923–945. https://doi.org/10.1007/s42438-020-00155-y

Sattler S, Wiegel C (2013). Cognitive test anxiety and cognitive enhancement: the influence of students' worries on their use of performance-enhancing drugs. *Substance Use & Misuse* **48**, 220–232. https://doi.org/10.3109/10826084.2012.751426

https://doi.org/10.1017/ipm.2021.28 Published online by Cambridge University Press

Savage MJ, James R, Magistro D, Donaldson J, Healy LC, Nevill M, Hennis PJ, 2020. Mental health and movement behaviour during the COVID-19 pandemic in UK university students: prospective cohort study. *Mental Health and Physical Activity* **19**, 100357. https://doi.org/10.1016/j.mhpa.2020.100357

Schelle KJ, Olthof BMJ, Reintjes W, Bundt C, Gusman-Vermeer J, van Mil ACCM (2015). A survey of substance use for cognitive enhancement by university students in the Netherlands. *Frontiers in Systems Neuroscience* **9**. https://doi.org/10.3389/fnsys.2015.00010

Singh I, Bard I, Jackson J (2014). Robust resilience and substantial interest: a survey of pharmacological cognitive enhancement among university students in the UK and Ireland. *PLoS One* **9**, e105969. https://doi.org/10.1371/journal.pone.0105969

Ssekakubo G, Suleman H, Marsden G (2011). Issues of adoption: have e-learning management systems fulfilled their potential in developing countries? In *Proceedings of the South African Institute of Computer Scientists and Information Technologists Conference on Knowledge, Innovation and Leadership in a Diverse, Multidisciplinary Environment - SAICSIT '11*. Presented at the South African Institute of Computer Scientists and Information Technologists Conference, ACM Press: Cape Town, South Africa, p. 231. https://doi.org/10.1145/2072221.2072248

Stadtfeld C, Vörös A, Elmer T, Boda Z, Raabe IJ (2019). Integration in emerging social networks explains academic failure and success. *Proceedings of the National Academy of Sciences* **116**, 792–797. https://doi.org/10.1073/pnas.1811388115

Tsouros AD, Dowding G, Thompson J, Dooris M (1998). *Health Promoting Universities: Concept, Experience and Framework for Action*, 1st ed. World Health Organisation, Regional Office for Europe Copenhagen: Denmark.

Wang C, Pan R, Wan X, Tan Y, Xu L, Ho CS, Ho RC (2020). Immediate psychological responses and associated factors during the initial stage of the 2019 Coronavirus disease (COVID-19) epidemic among the general population in China. *International Journal of Environmental Research and Public Health* **17**, 1729. https://doi.org/10.3390/ijerph17051729

Wang X, Hegde S, Son C, Keller B, Smith A, Sasangohar F (2020). Investigating mental health of US college students during the COVID-19 pandemic: cross-sectional survey study. *Journal of Medical Internet Research* **22**, e22817. https://doi.org/10.2196/22817

Wave 3 Results – NUI Galway [WWW Document] (2020). Corona Citizens Science Project. (http://www.nuigalway.ie/corona-study/results3/). Accessed 6 May 2020.

Zhai Y, Du X (2020). Addressing Collegiate Mental Health Amid COVID-19 Pandemic. *Psychiatry Research* https://doi.org/10.1016/j.psychres.2020.113003

https://doi.org/10.1017/ipm.2021.28 Published online by Cambridge University Press