

**The Impact of the 2012 Student Fees Increase on the Mental Health of British
Graduates: A Cohort Study.**

Abstract

Purpose: Financial difficulties are associated with poor student mental health, though the 2012 tuition fee for English students increase had little impact on student mental health in the first two years at university. This study examined the mental health of British graduates before and after this fee increase to determine the impact on student mental health.

Methodology. We conducted an online cohort study with 327 British students who started university before and after the 2012 fee increase. Participants completed measures of current economic hardship and symptoms of depression, anxiety, stress, general mental health, and suicidality. Multiple regression was used to examine the impact of: (a) cohort (pre and post 2012 fee increase), (b) tuition fee amount and, (c) economic hardship on mental health.

Findings. Greater economic hardship was positively correlated with all mental health variables. Starting university after the fees increased and/or paying greater fees was associated with increased depression, anxiety, stress, and suicidality, with little impact on general mental health. When economic hardship was covaried, the strength of cohort effects reduced but remained significant.

Originality. This is the first study to show that the 2012 tuition fee increase for British students increased depression, anxiety, stress, and suicidality in graduates many years after graduation, due to additional financial strain.

The Impact of the 2012 Student Fees Increase on the Mental Health of British Graduates: A Cohort Study.

Introduction

A large body of literature shows that financial difficulties are associated with poor mental health. For example, lower socioeconomic status is a risk factor for both physical and mental health problems (Kivimäki *et al.*, 2020), predicting greater depression rates across a number of European countries (Freeman *et al.*, 2016). Recessions also increase depression and anxiety rates (Frasquilho *et al.*, 2015), and depression is linked to greater individual financial stress (Guan *et al.*, 2022) and greater income inequality in a population (Patel *et al.*, 2018).

Students are a population who can be vulnerable to poor mental health, with 37% reporting poor mental health during the covid-19 pandemic [1]. There is also evidence that financial problems negatively impact mental health in students specifically, with student debt and financial stress being associated with poor mental health (Roberts *et al.* 2000, 1999). Recent research indicates that subjective financial stress is a stronger predictor of student mental health than objective financial difficulties; for example, a recent systematic review in the United Kingdom found little evidence that the amount of student debt is linked to mental health, and stronger and more consistent evidence showing that financial stress is associated with poor student mental health, suggesting that the mere amount of debt or level of financial difficulty is not as important as the perceived impact this has (McCloud and Bann, 2019). [2]

In 2012, tuition fees increased for English and Welsh students from ~£3.5k to ~£9k a year. Students in Scotland have free fees to study in Scotland or charged ~£9k, students in Northern Ireland pay £4.7k to study at home or ~£9k in other countries of the UK. These loans accrue interest and are taken automatically from payslips with a fixed percentage dependent on salary. At the time, this was predicted to double subsequent student debt (PUSH, 2011). A study in 2015 compared the mental health of British students who started before and after this

fee increase and found that those paying higher tuition fees had worse mental health at only one of the four time points across their first two years at university (Richardson *et al.*, 2015). However, additional analyses in this cohort indicated that financial hardship impacted mental health over time (Richardson *et al.*, 2017). The authors suggested that, as this was a short-term study and most students paying greater fees were predicted to never repay these, differences between those paying lower and higher fees may not emerge for several years once repayments on larger loans started (Richardson *et al.*, 2015). Qualitative research has found that those graduating after the increased tuition fees were worried about finances in the future and current level of debt compared to those paying lower fees [2], however the impact on mental health was not examined.

This study therefore sought to follow a new cohort, including students who started university before and after the 2012 fee increase, to examine the impact of student loan debt and financial stress on current mental health. We hypothesised that those starting university later and paying greater fees would report more mental health problems including depression, anxiety, stress, suicidality, and general mental health.

Method

Design and Participants

We used a cohort design to compare students who started university before and after tuition fees increased in 2012. We recruited participants who started university between 2008 and 2015 with British student tuition fees (or EU nationals with home fee status), regardless of whether they had a student loan or completed their degree. We recruited via posters, social media, university graduate relations teams, and Prolific (an online research platform on which people participate in studies in exchange for financial compensation), between Sept-2022 and Dec-2023.

Of 477 participants (251 from Prolific), 68 had insufficient data and 82 were ineligible (not British students or did not start university in the specified time period), leaving 327 participants (mean age: 30.6 years). A G*Power analysis indicated that to detect an effect of .15 with three predictors at $p=0.05$, 119 participants are required for 95% power.

Measures

Participants completed the following (alphas are reported for the current sample):

Demographics

Participants reported their age, gender, ethnicity, employment status, and income (Table I).

Financial hardship

The 12-item Economic Hardship Questionnaire (Lempers *et al.*, 1989) was used to assess objective financial hardship. For the first 10 items, participants rated, over the past six months, experiences related to financial hardship (such as change in food shopping/eating habits to save money) from 0 (*never*) to 3 (*very often*). Internal consistency was good ($\alpha = .89$).

General mental health

The 14-item Clinical Outcomes Routine Evaluation-General Population (Evans *et al.*, 2022) was used to assess general mental health. Participants rated, over the last week, how often they faced specific experiences (such as happiness, difficulty sleeping, ability to cope when things went wrong) from 0 (*not at all*) to 4 (*most or all of the time*). Internal consistency was excellent ($\alpha = .91$).

Anxiety

The seven-item Generalised Anxiety Disorder Scale (Spitzer *et al.*, 2006) was used to assess anxiety levels. Participants rated, over the last two weeks, how frequently they were bothered by anxiety experiences (such as nervousness, worry, and restlessness) from 0 (*not at all*) to 3 (*nearly every day*). Internal consistency was excellent ($\alpha = .92$).

Depression

The 20-item Centre for Epidemiological Studies Depression Scale (Radloff, 1977) was used to assess depression. Participants rated, over the last week, how often they had depressive experiences (e.g., feeling like a failure, feeling lonely, crying) on a scale from 1 (*rarely or none of the time – less than one day*) to 4 (*all of the time – 5-7 days*). Internal consistency was excellent ($\alpha = .95$).

Stress

The 10-item Perceived Stress Scale (Cohen *et al.*, 1983) was used to assess stress levels. Participants rated, over the last month, the frequency of stress-related experiences from 0 (*never*) to 4 (*very often*). Internal consistency was good ($\alpha = .89$).

Suicidality

The six-item Brief Suicide Cognitions Scale (Rudd and Bryan, 2021) was used to assess suicidality. Participants rated the extent to which they agreed with items from 1 (*strongly disagree*) to 5 (*strongly agree*). Internal consistency was excellent ($\alpha = .92$).

Table 1 about here

Procedure

The project was approved by the university ethics committee. Upon accessing the study link, participants first read the information sheet and provided full informed consent. They then completed the measures in the order listed above and were debriefed online upon completion. Prolific participants were paid £1.50 in exchange for their time.

Analysis

All variables were within -2–2 skew and kurtosis, indicating normality. We conducted hierarchical regression to examine whether cohort (starting university 2011 or before vs. 2012 or after) and tuition fee levels (0-4k vs. 8-9k) impacted mental health variables while covarying economic hardship.

Results

Correlations were positive between economic hardship and depression ($r=.42$), anxiety ($r=.48$), stress ($r=.45$), suicidality ($r=.37$), and general mental health ($r=.43$), all at $p<.001$. The cohorts were comparable on gender and ethnicity; those starting university 2011 and before were older (Table I), but age was not correlated with any mental health outcomes. The mean number of years since participants completed university was 8.74 ($n=315$).

The regression results are shown in Table II. Cohort (≤ 2011 vs. ≥ 2012), but not tuition fee level (0-4k vs. 8-9k) (trend, $p=.075$), predicted increased depression while covarying economic hardship. Cohort and tuition fee level predicted increased anxiety, stress, and suicidality. The effect of cohort reduced but remained significant when covarying economic hardship; the effect of tuition fees remained significant for suicidality with a non-significant trend for anxiety. Neither cohort (trend, $p=.075$), nor tuition fees predicted worsened general mental health.

Table II about here

Discussion

This cohort study examined whether the 2012 increase in tuition fees impacted British students' mental health. The results showed that those who started university later with increased tuition fees reported more symptoms of depression, anxiety, and stress, and greater suicidality, with a non-significant trend for worse general mental health. This contrasts with previous findings showing little cohort differences based on increased fees in students in their first two years of university (Richardson *et al.*, 2015). The findings extend the current literature by demonstrating the longer-term impact of increased tuition fees on mental health. This study shows that, on average, nine years after attending university, differences in mental health

emerge between those who started university before and after the tuition fee increase, despite these differences not being evident during their time at university (Richardson *et al.*, 2015).

Greater current economic hardship predicted greater mental health symptoms, including suicidality, and reduced the impact of cohort and tuition fee level when covaried. This suggests that cohort differences in mental health are due to greater current financial problems in those who paid higher tuition fees. The majority of those paying ~£9k a year are predicted to never fully repay their student loan (Crawford and Jin, 2014), meaning that the impact of financial problems may persist, and cohort differences may increase further with time. The finding that economic hardship was the strongest predictor of mental health aligns with research showing that greater financial difficulties worsen student mental health over time (Richardson *et al.*, 2017).

The sample was predominantly white and female, and those who were more stressed about their graduate debt may have been more likely to participate. Previous research has shown that subjective elements of financial difficulties such as subjective stress about debt, self-esteem, active coping, hopelessness, and shame are important mediators (Frankham *et al.*, 2020a, 2020b; Richardson *et al.*, 2015); the role of these in explaining cohort differences is not currently known.

In conclusion, the results suggest that the 2012 tuition fee rise has increased symptoms of depression, anxiety, stress, and suicidality in British graduates several years after completing university. This is likely due to additional financial strain in the cohort paying higher tuition fees loans and graduating with larger student loan debt. Previous research has shown that students see student loans as a form of ‘symbolic violence’ to control other social groups [3]. Our research adds that generational cohort differences in tuition fees may be having a mental

health impact at the public health level, and further monitoring and support of the mental health of those with high student debt levels is necessary.

Table I. Participant Demographics and Between-Group Differences

Demographic	<i>n</i> (%)
Residence when starting degree	
England	290 (88.7)
Wales	17 (5.2)
Scotland	14 (4.3)
Northern Ireland	6 (1.8)
Region of study	
England	276 (84.4)
Wales	31 (9.5)
Scotland	16 (4.9)
Northern Ireland	4 (1.2)
Employment	
Full-time employed	251 (76.8)
Part-time employed	28 (8.6)
Self-employed	17 (5.2)
Unemployed	15 (4.6)
Student	8 (2.4)
Receiving benefits	7 (2.1)
Other	1 (0.3)
Year started undergraduate degree	
2008	26 (8.0)
2009	29 (8.9)
2010	36 (11.0)
2011	44 (13.5)
2012	48 (14.7)
2013	50 (15.3)
2014	51 (15.6)
2015	43 (13.1)
Degree completed?	
Yes	315 (96.3%)
No	12 (3.7%)
Year degree completed	
2010	3 (0.9)
2011	15 (4.6)
2012	25 (7.6)
2013	39 (11.9)
2014	40 (12.2)
2015	38 (11.6)
2016	50 (15.3)
2017	45 (13.8)
2018	40 (12.2)
2019	15 (4.6)
2020	2 (0.6)
2021	3 (0.9)
Annual tuition fees	
£0-2k	27 (8.3)
£3-4k	121 (37.0)
£8-9k	153 (46.8)

Demographic	n (%)
Other amount	8 (2.4)
Don't know / prefer not to say	18 (5.5)
Student loan debt amount after graduating	
Did not take out a loan	16 (4.9)
£0-10k	31 (9.5)
£10-20k	56 (17.1)
£20-30k	82 (25.1)
£30-40k	54 (16.5)
£40-50k	60 (18.3)
£50-60k	18 (5.5)
£60k plus	10 (3.1)
Current student loan debt amount	
Paid it off	18 (5.5)
£0-10k	28 (8.6)
£10-20k	60 (18.3)
£20-30k	61 (18.7)
£30-40k	37 (11.3)
£40-50k	48 (14.7)
£50-60k	27 (8.3)
£60k plus	33 (10.1)
Current student loan repayment status (cohort 2011 and before)	
Not repaid anything	10 (7.4)
Made some payments but not paying regularly	18 (13.3)
Making regular payments but size of loan increasing	17 (12.6)
Making regular payments and size of loan staying the same	35 (25.9)
Making regular payments and size of loan is reducing	29 (21.5)
I have paid off my loan	15 (11.1)
Not sure	5 (3.7)
Current student loan repayment status (cohort 2012 and after)	
Not repaid anything	38 (19.8)
Made some payments but not paying regularly	26 (13.5)
Making regular payments but size of loan increasing	53 (27.6)
Making regular payments and size of loan staying the same	31 (16.1)
Making regular payments and size of loan is reducing	20 (10.4)
I have paid off my loan	5 (2.6)
Not sure	7 (3.6)
Other	2 (1.0)
Money owed apart from student loans (e.g., credit card, overdraft [excluding mortgages])	
Nothing	158 (48.3)
£1-10k	121 (37.0)
£10-20k	27 (8.3)
£20-30k	12 (3.7)
£30-40k	3 (0.9)
£40-50k	2 (0.6)
£50-60k	1 (0.3)
£60k plus	3 (0.9)
Personal annual income, excluding benefits	
Less than £10k	18 (5.5)

Demographic	<i>n</i> (%)	
£10-20k	33 (10.1)	
£20-30k	81 (24.8)	
£30-40k	91 (27.8)	
£40-50k	49 (15.0)	
£50-60k	19 (5.8)	
£60-70k	12 (3.7)	
£70-80k	6 (1.8)	
£80-90k	2 (0.6)	
£90-150k	2 (0.6)	
£150k plus	2 (0.6)	
Current housing situation		
Homeowner with mortgage	135 (41.3)	
Renting (with or without housing benefit)	122 (37.3)	
Living with family or friends or living rent-free	48 (14.7)	
Homeowner outright	9 (2.8)	
Part own and part renting a home (shared ownership)	6 (1.8)	
Part of a housing association	2 (0.6)	
Rent from council	1 (0.3)	
Other	4 (0.2)	
Mental health		
Anxiety clinical cut off (score of ≥ 7 on GAD-7)	156 (47.97)	
Depression clinical cut off (score of ≥ 16 on CES-D)	189 (57.08)	
	<i>n</i> (%)	Between-group differences
Gender		
Female	211 (64.5)	Cohort: $\chi^2(3, N=327) = 3.29, p = .349$
Male	111 (33.9)	Tuition fees: $\chi^2(3, N=327) = 2.19, p = .828$
Non-binary	2 (0.6)	
Prefer not to say	3 (0.9)	
Age (years)		
Mean (<i>SD</i>)	30.06 (3.08)	Cohort: $t(325) = 9.64, p < .001$
Range	25–57	Tuition fees: $t(299) = 8.42, p < .001$
Ethnicity		
White background	264 (80.7)	
Black background	25 (7.6)	Cohort: $\chi^2(4, N=327) = 1.49, p = .534$
Asian background	23 (7.0)	Tuition fees: $\chi^2(4, N=327) = 3.65, p = .456$
Mixed or multiple ethnic group	11 (3.4)	
Other	4 (1.2)	

Note. For between-group differences in Cohort (2011 and before vs. 2012 and after) and Tuition fee level (0-4k vs. 8-9k), Chi-squared (χ^2) is reported for gender and ethnicity, and independent *t*-tests for age.

Table II. Hierarchical Regression Statistics

Dependent	Predictors (<i>df</i>)	Regression Coefficient				Model		
		β	<i>t</i>	<i>p</i>	<i>sr</i> ²	<i>F</i>	<i>p</i>	<i>R</i> ²
Depression	Step 1 (2, 298)							
	Cohort	6.74	2.87	.004	.03	4.32	.014	.03
	Tuition fee level	-4.14	-1.79	.075	-			
	Step 2 (3, 297)					26.81	<.001	.21
	Cohort	5.34	2.52	.012	.02			
	Tuition fee level Economic hardship	-2.65 0.85	-1.27 8.36	.206 <.001	- .18			
Anxiety	Step 1 (2, 298)							
	Cohort	2.87	3.02	.003	.03	4.57	.011	.03
	Tuition fee level	-2.10	-2.24	.026	-.02			
	Step 2 (3, 297)					33.27	<.001	.25
	Cohort	2.25	2.68	.008	.02			
	Tuition fee level Economic hardship	-1.44 0.38	-1.73 9.38	.084 <.001	- .17			
Stress	Step 1 (2, 298)							
	Cohort	3.45	2.57	.011	.02	3.35	.037	.02
	Tuition fee level	-2.84	-2.14	.033	-.01			
	Step 2 (3, 297)					28.84	<.001	.23
	Cohort	2.61	2.18	.030	.01			
	Tuition fee level Economic hardship	-1.94 0.51	-1.64 8.84	.103 <.001	- .20			
Suicidality	Step 1 (2, 298)							
	Cohort	2.85	3.16	.002	.03	5.15	.006	.03
	Tuition fee level	-2.48	-2.78	.006	.03			
	Step 2 (3, 297)					21.67	<.001	.18
	Cohort	2.37	2.83	.005	.02			
	Tuition fee level Economic hardship	-1.97 0.29	-2.39 7.27	.018 <.001	-.02 .15			

Dependent	Predictors (<i>df</i>)	Regression Coefficient				Model		
		β	<i>t</i>	<i>p</i>	<i>sr</i> ²	<i>F</i>	<i>p</i>	<i>R</i> ²
General mental health	Step 1 (2, 298)							
	Cohort	3.42	1.79	.075	-	1.61	.201	.01
	Tuition fee level	-2.34	-1.23	.218	-			
	Step 2 (3, 297)							
	Cohort	2.26	1.31	.191	-	25.48	<.001	.21
	Tuition fee level	-1.10	-0.65	.519	-			
Economic hardship	0.70	8.51	<.001	.19				

Note. T2 = Time 2. β = unstandardized regression coefficient. *sr*² = squared semipartial regression coefficient

References

- Cohen, S., Kamarck, T. and Mermelstein, R. (1983), "A global measure of perceived stress", *Journal of Health and Social Behavior*, pp. 385-396. DOI: 10.2307/2136404.
- Crawford, C. and Jin, W. (2014), "Payback time? Student debt and loan repayments: what will the 2012 reforms mean for graduates?", IFS Report.
- Evans, C., Connell, J., Barkham, M., Margison, F., McGrath, G., Mellor-Clark, J., and Audin, K. (2002), "Towards a standardised brief outcome measure: psychometric properties and utility of the CORE-OM", *British Journal of Psychiatry*, Vol. 180 No. 1, pp. 51-60. DOI: 10.1192/bjp.180.1.51.
- Frasquilho, D., Matos, M.G., Salonna, F., Guerreiro, D., Storti, C.C., Gaspar, T., and Caldas-de-Almeida, J.M. (2015), "Mental health outcomes in times of economic recession: a systematic literature review", *BMC Public Health*, Vol. 16, pp. 1-40. DOI: 10.1186/s12889-016-2720-y.
- Frankham, C., Richardson, T. and Maguire, N. (2020), "Do locus of control, self-esteem, hope and shame mediate the relationship between financial hardship and mental health?", *Community Mental Health Journal*, Vol. 56 No. 3, pp. 404-415. DOI: 10.1007/s10597-019-00516-1.
- Frankham, C., Richardson, T. and Maguire, N. (2020), "Psychological factors associated with financial hardship and mental health: A systematic review", *Clinical Psychology Review*, Vol. 77. DOI: 10.1016/j.cpr.2020.101832.
- Freeman, A., Tyrovolas, S., Koyanagi, A., Chatterji, S., Leonardi, M., Ayuso-Mateos, J.L., Tobiasz-Adamczyk, B., Koskinen, S., Rummel-Kluge, C., and Haro, J.M. (2016), "The role of socio-economic status in depression: results from the COURAGE (aging survey in Europe)", *BMC Public Health*, Vol. 16, pp. 1-8. DOI: 10.1186/s12889-016-3638-0.

- Guan, N., Guariglia, A., Moore, P., Xu, F., and Al-Janabi, H. (2022), "Financial stress and depression in adults: A systematic review", *PLOS ONE*, Vol. 17 No. 2, p. e0264041. DOI: 10.1371/journal.pone.0264041.
- Kivimäki, M., Batty, G.D., Pentti, J., Shipley, M.J., Sipilä, P.N., Nyberg, S.T., Suominen, S.B., Oksanen, T., Stenholm, S., Virtanen, M., Marmot, M.G., Singh-Manoux, A., Brunner, E.J., Lindbohm, J.V., Ferrie, J.E., and Vahtera, J. (2020), "Association between socioeconomic status and the development of mental and physical health conditions in adulthood: a multi-cohort study", *The Lancet Public Health*, Vol. 5 No. 3, pp. e140-e149. DOI: 10.1016/S2468-2667(19)30248-8.
- Lempers, J.D., Clark-Lempers, D. and Simons, R.L. (1989), "Economic hardship, parenting, and distress in adolescence", *Child Development*, pp. 25-39. DOI: 10.2307/1131078.
- McCloud, T. and Bann, D. (2019), "Financial stress and mental health among higher education students in the UK up to 2018: rapid review of evidence", *Journal of Epidemiology and Community Health*, Vol. 73 No. 10, pp. 977-984. DOI: 10.1136/jech-2019-212154.
- Patel, V., Burns, J.K., Dhingra, M., Tarver, L., Kohrt, B.A., and Lund, C. (2018), "Income inequality and depression: a systematic review and meta-analysis of the association and a scoping review of mechanisms", *World Psychiatry*, Vol. 17 No. 1, pp. 76-89. DOI: 10.1002/wps.20492.
- PUSH (2011), "Push Student Debt Survey 2011", Push: London.
- Radloff, L.S. (1977), "The CES-D scale A self-report depression scale for research in the general population", *Applied Psychological Measurement*, Vol. 1 No. 3, pp. 385-401. DOI: 10.1177/014662167700100306.
- Richardson, T., Elliott, P. and Roberts, R. (2015), "The impact of tuition fees amount on mental health over time in British students", *Journal of Public Health*, Vol. 37 No. 3, pp. 412-418. DOI: 10.1093/pubmed/fdv003.

- Richardson, T., Elliott, P., Roberts, R., and Jansen, M. (2017), "A longitudinal study of financial difficulties and mental health in a national sample of British undergraduate students", *Community Mental Health Journal*, Vol. 53 No. 3, pp. 344-352. DOI: 10.1007/s10597-017-0100-3.
- Roberts, R., Golding, J., Towell, T., & Weinreb, I. (1999), "The effects of economic circumstances on British students' mental and physical health", *Journal of American College Health*, Vol. 48 No. 3, pp. 103–109. DOI: 10.1080/07448489909595681
- Roberts, R., Golding, J., Towell, T., Reid, S., Woodford, S., Vetere, A., et al. (2000), "Mental and physical health in students: The role of economic circumstances", *British Journal of Health Psychology*, Vol 5 No. 3, pp. 289–297. DOI: 10.1348/135910700168928
- Rudd, M.D. and Bryan, C.J. (2021), "The brief suicide cognitions scale: development and clinical application", *Frontiers in Psychiatry*, Vol. 12, p. 737393. DOI: 10.3389/fpsy.2021.737393.
- Spitzer, R.L., Kroenke, K., Williams, J.B.W., and Löwe, B. (2006), "A brief measure for assessing Generalized Anxiety Disorder: The GAD-7", *Archives of Internal Medicine*, Vol. 166 No. 10, pp. 1092-1097. DOI: 10.1001/archinte.166.10.1092.
1. Jones, S.E., *Mental health, suicidality, and connectedness among high school students during the COVID-19 pandemic—Adolescent Behaviors and Experiences Survey, United States, January–June 2021*. MMWR supplements, 2022. **71**.
 2. Vigers, K., et al., *Higher fees, higher debts: Unequal graduate transitions in England?*, in *Higher education funding and access in international perspective*. 2018, Emerald Publishing Limited. p. 81-98.
 3. Harris, D., K. Vigers, and S. Jones, *Student loans as symbolic violence*. *Journal of higher education policy and management*, 2021. **43**(2): p. 132-146.