

# Mental Well-being in UK Higher Education during Covid-19: Do Students Trust Universities and the Government?

Margaret Anne Defeyter<sup>1\*</sup>, Paul B. Stretesky<sup>1</sup>, Michael A. Long<sup>2</sup>, Sinéad Furey<sup>3</sup>, Christian Reynolds<sup>4,8</sup>, Debbie Porteous<sup>1</sup>, Alyson Dodd<sup>1</sup>, Emily Mann<sup>1</sup>, Anna Kemp<sup>5</sup>, James Fox<sup>6</sup>, Andrew McAnallen<sup>7</sup>, Lara Gonçalves<sup>2</sup>

<sup>1</sup>Healthy Living Lab, Northumbria University, Newcastle upon Tyne, UK

<sup>2</sup> Department of Sociology, Oklahoma State University, Stillwater, USA.

<sup>3</sup> Ulster University Business School, Ulster, UK

<sup>4</sup> Centre for Food Policy, City University, London, UK

<sup>5</sup> Student Union, Northumbria University, Newcastle upon Tyne, UK

<sup>6</sup> Marketing Department, Northumbria University, Newcastle upon Tyne, UK

<sup>7</sup> Student Union, Ulster University, Ulster, UK

<sup>8</sup> Institute of Sustainable Food, University of Sheffield, Sheffield UK

## \*Correspondence:

Corresponding Author: [greta.defeyter@northumbria.ac.uk](mailto:greta.defeyter@northumbria.ac.uk)

**Keywords:** Trust, UK Higher Education, Food Security, Housing Security

## Abstract

This paper draws upon the concept of recreancy to examine the mental well-being of university students during the Covid-19 pandemic. Briefly, recreancy is loss of societal trust that results when institutional actors can no longer be counted on to perform their responsibilities. Our study of mental well-being and recreancy focuses on the role of universities and government regulators within the education sector. We surveyed 600 UK students attending 161 different public higher education providers in October 2020 during a time when many UK students were isolated in their residences and engaged in online learning. We assessed student well-being using the Short Warwick-Edinburgh Mental Well-Being Scale (scored 7 to 35) and found the mean score to be 19.9 (95% confidence interval (CI) 19.6, 20.2). This level of well-being indicates that a significant proportion of UK students face low levels of mental well-being. Structural equation modelling (SEM) analysis indicate that high recreancy – measured as a low trust in universities and the government – is associated with low levels of mental well-being across the student sample. While these findings are suggestive, they are also important and we suggest that government and university leaders should not only work to increase food and housing security during the Covid-19 pandemic, but also consider how to combat various sector trends that might intensify recreancy.

40  
41  
42  
43  
44  
45  
46  
47  
48  
49  
50  
51  
52  
53  
54  
55  
56  
57  
58  
59  
60  
61  
62  
63  
64

## **Introduction**

The negative impact of the Covid-19 pandemic on the mental well-being and mental health of university students is serious and a growing concern (Kecojevic et al., 2020; Savage et al. 2020; Son et al. 2020). Low levels of mental well-being can reduce motivation, diminish concentration and hinder academic attainment (Eisenberg et al., 2009; except see Topham and Moller, 2011; Brook and Willoughby 2015;). Moreover, low levels of student mental well-being can also be a major factor in self-harm and suicide ideation (Bantjes et al., 2016). Previous studies suggest that factors such as race, gender, age and financial strain are likely associated with student mental well-being (Burriss et al., 2009; Hardeman et al. 2015). While there is strong reason to suspect that the impact of these established factors on well-being are intensified during the Covid-19 pandemic, few studies have examined university student mental well-being and the role of institutional trust during the pandemic. That is, the Covid-19 has served as a reminder that social institutions such as education cannot be counted on to attenuate what Brown (2020, p.1) labels an “ecological disaster.” As a result, in this work we draw upon a social-psychological perspective to argue that contemporary studies of student mental well-being should account for student trust in their university and government to ensure their mental well-being during the Covid-19 pandemic. To make this connection we draw upon Freudenburg’s (1993, p. 915-916) concept of recreancy that we employ by measuring perceptions of trust in universities and government regulators to understand risk management associated with low levels of student well-being during Covid-19. Specifically, recreancy is “a retrogression or failure to follow through on a duty or trust” (Freudenburg, 1993, p. 916). Staying true to Freudenburg’s original conception of recreancy we do not lay blame on any institutional actors. Instead, the purpose of this

65 research is to determine whether and how student levels of trust in two important actors in  
66 the education sector during Covid-19 may impact student mental well-being.

67 The current research is divided into five sections. First, we examine the concept of  
68 recreancy to demonstrate how it is relevant to ecological disasters such as Covid-19. Next,  
69 we examine the literature on student well-being, situating the concept of recreancy  
70 alongside important predictors of well-being to propose a model of student well-being  
71 during Covid-19. Third, we explain data collection and methods for testing our model of  
72 student well-being. In that section we draw upon a survey of 600 students currently  
73 enrolled in universities across the UK. The fourth section of this manuscript describes the  
74 findings of the research. Specifically, we discover trust is correlated with mental well-  
75 being but also appears to be shaped by food and housing insecurity as well as social and  
76 economic circumstances. Finally, we conclude by suggesting that recreancy, as  
77 operationalized by asking whether students trust their university and the government, is  
78 likely to be a critical variable in studies of student well-being during ecological disasters  
79 such as the Covid-19 pandemic.

## 80 **Ecological Disasters and Recreancy**

81 One view of the current pandemic is that it is an anthropogenically driven  
82 ecological disaster that has arisen because of technological advances in agriculture. In  
83 short, the modern world provides an ideal environment for emerging pathogens that can  
84 lead to such disasters. Brown (2020) explains:

85 *As cities and farm operations grew, people and animals crowded closer*  
86 *together. The result was a new epidemiological order, in which zoonotic*  
87 *diseases—ones that could jump from animal to human—thrived. At first,*  
88 *these diseases remained confined to the places where they originated.*  
89 *[However]...infectious diseases have broken out more than twelve thousand*

90 *times over the past three decades. It's no small feat to cross the species*  
91 *barrier; these numbers speak to the scale of our agricultural system.*

92 Thus, the interconnectedness of biological lives makes it likely, if not inevitable, for  
93 pandemics such as Covid-19 to occur. In particular, those advances in agriculture  
94 technology that have allowed for unprecedented levels of food production and when  
95 combined global travel and trade they can contribute to the creation of an ecological  
96 network that binds us all together and lay the groundwork for ecological disasters (see  
97 Morens et al., 2020; Shereen et al. 2020).

98 It is within the context of ecological disaster that we draw upon Freudenburg's  
99 concept of recreancy (see also Ritchie and Gill, 2007). Freudenburg (1993) developed his  
100 theory of recreancy by drawing upon Durkheim's (1933 [1893]) theory of the division of  
101 labor, or the notion that societies are increasingly held together organically as  
102 occupational specialization increases. While the division of labor is responsible for  
103 important technological advances, it is also simultaneously problematic (Freudenburg  
104 1993). That is, "the very division of labour that permits many of the achievements of  
105 advanced industrial societies may also have the potential to become one of the most  
106 serious sources of risk and vulnerability" (Freudenburg 1993, p.914). The implications of  
107 this unintended consequence of specialization are not only that technological disasters  
108 occur, but in Freudenburg's words that "natural forces" overcome institutional defences  
109 that are no longer reliable. In short, social institutions are not trusted because institutional  
110 actors fail to carry out their obligations. While recreancy research tends to focus on the  
111 actors within institutions, Freudenburg believed in a more nuanced approach that linked  
112 these actors to their social institutions. Thus, Freudenburg (1993; 2000) conceived of  
113 recreancy as the deterioration or lack of trust in social institutions. This institutional focus  
114 allowed Freudenburg to maintain that recreancy was not about blaming institutional  
115 actors.

116 *It is not relevant to know whether or not villainy can be discerned,*  
117 *whether at individual or collective levels; instead, to repeat Weber's*  
118 *words, the key question is simply whether experience shows that the*  
119 *behaviors of specialized individuals and institutions can be counted*  
120 *on (Freudenburg 1993, p. 917).*

121 We apply the concept of recreancy to the educational sector because it is often viewed as  
122 taking a major role in student 'duty of care' and ensuring student well-being (de la Torre,  
123 2019; Maier, 2015). In short, the university has a direct impact on lives of many students  
124 (Barnett et al. 2015; Laird et al. 2013). In the UK, universities have been under pressure  
125 for their response to Covid-19. For instance, the media has widely reported that students  
126 believe universities have failed to protect their well-being during lockdown (BBC News,  
127 2020; Hall, 2020; Hopegood, 2020; Onapa, 2020). This pressure has led to a public  
128 outcry that universities cannot be trusted. For example, Manchester University was  
129 forced to publicly apologize "*for the concern and distress caused*" to students after  
130 university officials surrounded resident halls with guarded metal barriers during the night  
131 to keep students segregated (Kennelly, 2020). Anecdotally, students across the country  
132 have reported that they cannot count on universities during the Covid-19 crisis. As one  
133 student succinctly put it, "*We were lied to*" (Moore, 2021, para 8). Other students extend  
134 blame to government regulators who do not carry out their university oversight  
135 responsibilities and instead allow universities to freely take advantage of students.  
136 Moreover, some higher education advocates even suggest that the government has failed  
137 to provide universities with appropriate guidance and financing which leaves universities  
138 little choice but to exploit their own student populations. For example, one journalist  
139 observed, the "*government has yet to show [universities] the sort of crisis support it tried*  
140 *to extend, for example, to the hospitality industry*" (Moore, 2021, para 7). In the wake of  
141 these events students' advocate groups have called for additional help and students have

142 engaged in organised protest activities ranging from rent strikes to virtual direct action by  
143 highlighting their grievances like food insecurity or prison-like living conditions to  
144 shame universities (Hall, 2020). More recently, students have organised a call for tuition  
145 and rent refunds as well as better access to campus facilities and student health and well-  
146 being support (Dawson, 2021; Hall, 2020; Hopegood, 2020). In this research we suggest  
147 that whether the university and its regulators can be “counted on” during an ecological  
148 crisis such as Covid-19 has important implications for the mental well-being of students.

149           Unsurprisingly, there have been few studies of recreancy among university  
150 students. One notable exception is research by Ladd et al., (2007; see also Gill et al.,  
151 2007) into the relocation of nearly 50,000 New Orleans college students during  
152 Hurricane Katrina, a large Category 5 hurricane that struck southeastern United States in  
153 August 2005. Ladd et al., (2017) discovered that students were filled with perceptions of  
154 recreancy, especially in relation to the government’s response to the disaster. As the  
155 researchers report, “about six out of 10 students stated, based on their disaster  
156 experiences, they did not trust President Bush, FEMA [i.e., Federal Emergency  
157 Management Agency], the federal government, or the Louisiana state government” (Ladd  
158 et al., 2017, p.64), with one university student summing up their feelings of recreancy as  
159 follows: “FEMA is a joke!” (p. 66). Students in the study reported that they “distrusted  
160 the federal government, even more than before” and could not “count on any politician.”  
161 While Ladd’s study was appropriately focused on the trust of state and federal  
162 government response to relocating students during the Katrina disaster, we focus on  
163 recreancy by asking about trust in higher education and its operational response during  
164 Covid-19.

165           Despite the scarcity of research on student recreancy, the concept has been applied  
166 to a variety of technological and natural disasters (Bickerstaff et al., 2008; Cope et al.,  
167 2016, 2020; Gill et al., 2016; Freudenburg et al., 2009; McSpirit, 2005; Ritchie et al.,

168 2013; Straub, 2020). As Ritchie et al., (2013, p. 657) observe, recent scholars have noted,  
169 recreancy “offers important insights into social impacts such as loss of social capital and  
170 civility, as well as psychological responses of frustration, anger, and hostility frequently  
171 associated with these types of events.” (see also Ritchie and Gill 2007; Ritchie et al.,  
172 2018). While scholars have examined recreancy with respect to potential community  
173 impacts that disrupt and harm social relationship and create civil disorder there have been  
174 no studies, of which we are aware, that examine the concept of student recreancy during  
175 the Covid-19 pandemic. Thus, our examination of mental well-being is social-  
176 psychological in that we hypothesize that students experiencing high levels of recreancy,  
177 and therefore low levels of trust in the university and its regulators will also have lower  
178 levels of mental well-being than students who have high levels of trust in these two sets of  
179 actors.

### 180 **Predicting Student Mental Well-Being**

181 The World Health Organization (2004) states, “mental health is not just the  
182 absence of mental disorder [but] as a state of well-being in which every individual realizes  
183 his or her own potential, can cope with the normal stresses of life, can work.” Mental  
184 well-being is the experience of health and prosperity. It includes having good mental  
185 health, high life satisfaction, a sense of meaning or purpose, and an ability to manage  
186 stress (Yilmazli Trout and Alsandor 2020).

187 In our review, we highlight research that directly measures well-being or its  
188 components, and mental health difficulties that could aid or disrupt an individual’s  
189 potential. Previous research has overwhelmingly suggested that a variety of factors such  
190 as financial strain, gender, race and age, housing security and food security may impact  
191 well-being (Hardeman et al., 2015). We review these factors below prior to presenting our  
192 integrated model of student recreancy and well-being during Covid-19.

193                   **Financial Strain.** A number of studies have examined the economic  
194 circumstances and mental well-being of university students. Among the most studied  
195 variables are student financial pressures, which are likely to decrease mental well-being.  
196 For instance, university students who come from lower socioeconomic status households  
197 often face more financial strain and therefore have higher rates of mental health problems  
198 and lower levels of mental well-being than do those who come from more affluent  
199 households (Eisenberg et al., 2007). In a study of Australian students, Stallman (2010)  
200 found that students who identified as having any level of financial stress were much more  
201 likely to report decreased subjective mental well-being when compared to students with  
202 no financial stress (see also Lange and Byrd, 1998; Ansari et al., 2011; Mulder and  
203 Cashin, 2015). In a recent UK study Benson-Egglenton (2019) found a clear relationship  
204 between students' mental well-being and financial circumstances. That is, students that  
205 faced financial hardship had lower levels of mental well-being. Benson-Egglenton  
206 reported that students who had higher well-being scores on the Short Warwick-Edinburgh  
207 Mental Well-being Scale (SWEMWBS) were less likely to need a student loan, more  
208 likely to receive financial support from their parents and less likely to be in debt when  
209 compared to those who had lower well-being scores.

210                   **Gender.** Male and female students have also been identified as having different  
211 levels of well-being. Female students are more likely to self-report symptoms consistent  
212 with mental illness than their male peers (Eisenberg et al., 2007). In addition, female  
213 students are more likely than male students to perceive various academic, friend and work  
214 scenarios as stressful (Day and Livingstone, 2003) which may impact mental well-being.  
215 Moreover, research on student well-being suggests that female students have lower levels  
216 of mental well-being than males and are also more likely to suffer from distress, including  
217 more somatic symptoms and anxiety/insomnia (Saleh et al., 2017) which might be linked  
218 to academic performance. In particular, women in male dominated fields of study are



219 more likely to feel pressure to conforming to the gender stereotypes (i.e., ‘stereotype  
220 threat’), which is associated with poor mental health (Bell et al., 2003).

221 While considerable evidence exists that female students are more at risk of low  
222 levels of mental well-being than male students, a number of studies on gender and well-  
223 being are inconclusive. Lee and Loke (2005) find that male students participate in more  
224 pro-health type behaviours than female students but that no gender differences in  
225 psychosocial well-being exist (Lee & Loke 2005; see also Ansari and Stock, 2010).  
226 Nevertheless, Ansari et al., (2013, p.293) found that even while females were more likely  
227 to rate well-being higher than males, they were also “more likely [than males] to feel  
228 psychosomatic/physical health problems ... [and] ... more likely to feel burdened  
229 overall.”

230 **Race/Ethnicity.** White university students have higher levels of mental well-being  
231 (Dyrbye et al., 2007) and lower levels of psychological distress (Prelow et al., 2006) than  
232 other students. Wang et al., (2008) discovered ethnic minority students tended to feel less  
233 satisfied with life and experienced more stress than white students. Moreover, ethnic  
234 minority students often report having higher levels of stress and lower levels of mental  
235 well-being than white students, suggesting a potential correlation between stress and well-  
236 being (Cokley, McClain, Enciso, & Martinez, 2013; Griffith, Hurd, & Hussain, 2017).  
237 The finding that ethnic minority students experience lower levels of mental well-being  
238 than white students is often reported in the literature, and there may be reasons for this  
239 finding other than stress (Ben-Ari, 2004; Blaine & Crocker, 1995; Iwamasa & Kooreman,  
240 1995). For instance, as is the case with stereotype threats faced by women, ethnic minority  
241 students may feel significant pressure to reject group stereotypes (Aronson et al., 2013).  
242 Steele et al. (1995) discovered that being under threat of judgement by a racial stereotype  
243 leads to impaired performance on tests and is associated with lower levels of mental well-  
244 being. Other research suggests that ethnic minority students might experience low levels

245 of mental well-being and higher levels of mental illness because of the university campus  
246 climate or existing institutional prejudice and discrimination (Williams, Yu, Jackson, &  
247 Anderson, 1997; Greer & Chwalisz, 2007; Sue & Sue, 2008; Christopher & Skillman,  
248 2009). In a study of first year medical students Hardeman et al. (2015) compared African  
249 American students to white students and found that African American students had nearly  
250 twice the risk of being classified as having symptoms of depression and anxiety. In short,  
251 the harmful social stereotypes and discrimination are likely to contribute to lower levels of  
252 mental well-being among non-white students.

253 **Age.** Research suggests that young people are disproportionately impacted by low  
254 levels of mental well-being when compared to other ages (Pedrelli et al., 2015). In  
255 addition, most studies of university student mental well-being that control for age suggest  
256 that students face a decline in their mental well-being in their first year of study (Topham  
257 et al., 2011). Older university students are more likely to seek help for mental health  
258 problems (Eisenberg et al., 2007). While age seems to be a factor in mental well-being,  
259 some studies do not find a relationship between age and outcomes related to mental well-  
260 being, such as stress (e.g., Saleh et al., 2017). In addition, a few studies (e.g., Voltmer et  
261 al., 2012; Galbraith and Merrill 2015) suggest there is a negative correlation among age  
262 and factors associated with mental well-being perhaps because older students (e.g., those  
263 typically in post-graduate school) are sometimes identified as being more sleep deprived  
264 (Wallace et al., 2017) or are more likely to suffer from academic burnout (Lin and Huang,  
265 2014). Finally, some research finds that age and gender may interact in that age only  
266 matters for female students, where older students report higher levels of mental well-being  
267 than younger students (Davoren et al., 2013).

268 **Food/Housing Insecurity.** Both food and housing insecurity are believed to be  
269 related (Payne-Sturges et al., 2018) and predict low levels of mental well-being (Heflin  
270 and Ziliak 2008; Howell and Howell 2008; Stahr et al., 2015; Broton and Goldrick-Rab,

271 2016; Frongillo et al., 2017; Jones 2017; Lee 2020). Moreover, some students may even  
272 sacrifice basic food and housing needs to pay university tuition and fees. Food insecurity  
273 exists when there is insufficient or inappropriate access to food, while housing insecurity  
274 occurs when housing is unstable, unaffordable, unsafe or unavailable (Haskett et al.,  
275 2020). There is growing recognition that food insecurity is tied to mental well-being on  
276 university campuses and many researchers are starting to conclude that food insecurity is  
277 likely to be a consistent and main factor associated with anxiety and depression among  
278 university students (Goldrick-Rab et al., 2015; Bruening et al., 2016; Coffino et al., 2020;  
279 Diamond et al., 2020). A recent systematic review of 58 empirical studies from countries  
280 across the globe suggest that nearly one-third of university students may be food insecure  
281 and it is likely that that they suffer from “poorer nutritional outcomes, higher stress and  
282 depression and adverse learning, academic outcomes and/or productivity” as a  
283 consequence (Bruening et al., 2017, p. 1780; see also Nazmi et al., 2019).

284  
285  
286 While housing insecurity is less studied than food insecurity among student  
287 populations it is, nevertheless, often mentioned in studies of student mental well-being  
288 (Leung et al., 2020). Moreover, in countries like the United States, 11-19% of  
289 undergraduate students are housing insecure (Broton and Goldrick-Rab 2018; see also  
290 Haskett et al., 2020) and these rates are increasing (Goldrick-Rab, 2020). Importantly,  
291 Leung et al. (2020) found that students who were facing housing insecurity were nearly  
292 twice as likely to report on a patient health questionnaire that they faced anxiety and  
293 depression, two conditions that negatively impact mental well-being.

294 Finally, it must be noted that food and housing insecurity are likely to impact well-  
295 being but are also likely to be strongly related to other important factors. For instance,  
296 financial strain is likely to have an important and direct impact on both housing and food

297 insecurity (Hughes et al., 2011; Micevski et al., 2014; Patton-López et al., 2014; Knol et  
298 al., 2018; Zigmont et al., 2019) among students, which are also likely to impact mental  
299 well-being (Raskind et al., 2019). Students who receive student loans are also more likely  
300 to be food insecure (Morris et al., 2016; Payne-Sturges et al., 2018) while those who have  
301 competing financial obligations are more likely to face food insecurity (McArthur, 2017).  
302 Raskind et al. (2019) found that students whose parents have less than a high school  
303 education, are receiving benefits and have lower discretionary budgets are more likely to  
304 identify as food insecure. Those studies that have been conducted suggest that poverty and  
305 financial stress leads to increased anxiety and poor mental health (Eisenberg et al., 2007;  
306 Woessner, 2012). Moreover, it is increasingly clear that marginalized students are  
307 particularly at risk. That is, non-white (Martinez et al., 2018; Phillips et al., 2018),  
308 multiethnic (Wood & Harris, 2018), female (Patton-López et al., 2014; Maroto et al.,  
309 2015, but see Martinez et al., 2018; Raskind et al., 2019), Lesbian, Gay, Bisexual,  
310 Transgender, Queer (LGBTQ) students (UC Global Food Initiative, 2017) are  
311 disproportionately food insecure when compared to white males.

## 312 **Methods**

313 *Sampling and Data Collection.* Research on recreancy and predictors of student  
314 mental well-being generated a set of hypotheses in Table 1 to be tested in this study. We  
315 are especially interested in examining the relationship between institutional trust and  
316 mental well-being within the context of the existing literature on student mental well-  
317 being. Figure 1 summarizes the predicted relationships in the literature along with  
318 variables on institutional trust.

319 **[Table 1 About Here]**

320 The findings presented in this research are drawn from a cross-sectional sample of  
321 UK university students administered during the Covid-19 pandemic. Following ethical  
322 approval from the Faculty of Arts, Design and Social Sciences Ethics Committee at

323 Northumbria University (reference no: 22790) a sample of 600 students was obtained with  
324 the help of *Prolific* (www.prolific.ac), an online survey platform that connects researchers  
325 to participants and is often used for social and economic research (Palan and Schitter  
326 2018). Out of the 600 students who responded to the survey, 133 students did not provide  
327 answers to all the survey questions. As a result, the total sample size for this study is  
328 n=467 students. We provide a breakdown of missing cases by variable in Appendix A  
329 along with descriptive statistics for the variables included in our analysis (described  
330 below). Specifically, *Prolific* selected the student sample from a population of 4,758  
331 eligible students who were immediately available to enrol in the research on a first-come,  
332 first-served basis. All participants received £1.50 compensation for their time to complete  
333 the short questionnaire that consisted of 38 close-ended questions. The questionnaire took  
334 less than 10 minutes to complete and was administered between 27-28 October 2020.

335 **[Figure 1 About Here]**

336 In 2018/2019 the UK Higher Education Statistics Agency reported that 2.38  
337 million students were enrolled at 169 public higher education providers across England,  
338 Northern Ireland, Scotland and Wales. In the current study, the student sample consisted  
339 of 600 students from 161 public higher education and alternative providers in the UK.  
340 93.5% of these students were undergraduates. Overall, the sample was 64% female (vs.  
341 64% of undergraduates in the public university population in 2018/2019), 62% white (vs.  
342 75% of undergraduates in the public university population in 2018/2019), 49% were under  
343 21 years of age (vs. 57% in the undergraduate university population in 2018/2019), 22%  
344 report that they had received means tested, free school meals during secondary education  
345 (vs. 19% who came from the most deprived areas of the UK in 2018/2019) and 45%  
346 reported that they were first generation HE students (vs. 50% in the university population

347 in 2018/2019)<sup>1</sup>. Notable, then, the sample of students in this study appears to reflect the  
348 UK population of undergraduates with some amount of accuracy.

349 ***Mental Well-being.*** The primary dependent variable in the current study is mental  
350 well-being that is measured with the Short Warwick-Edinburgh Mental Well-being Scale  
351 (SWEMWBS). The SWEMWBS has been widely used by researcher studying mental  
352 well-being (e.g., Fat et al., 2017; Fung, 2019; Marshall et al., 2019; Lee et al., 2020;  
353 Summers et al., 2020) and measures the positive aspects of mental health. The scale  
354 assesses mental well-being using a 5-point Likert scale (1= ‘None of the time’, 2=  
355 ‘Rarely’, 3= ‘Some of the time’, 4= ‘Often’, 5= ‘All of the time’) on seven questions with  
356 an overall outcome score ranging from 7 to 35. All SWEMWBS scores were transformed  
357 using the published metric conversion recommended by Stewart-Brown et al. (2009, para  
358 22). Higher scores on the SWEMWBS are indicative of greater mental well-being. The  
359 SWEMWBS has been used to study student populations and is correlated with other  
360 scales measuring overall health, physical well-being, life satisfaction and emotional  
361 intelligence (Kannangara, et al., 2018; Tennant et al., 2007; Fat et al., 2017). Moreover,  
362 past research has found that in 2011 mean SWEMWBS scores for 16- to 24-year-olds in  
363 the English population range between 23.2 for women and 23.6 for men (Fat et al. 2017).  
364 The mean SWEMWBS score in the current sample is 19.9. While comparisons are  
365 difficult to make across diverse populations and time periods it is not surprising that the  
366 mean SWEMWBS score in the current sample is somewhat lower than reported in  
367 previous studies. Moreover, in the current study the SWEMWBS showed good internal  
368 consistency, with a Cronbach’s alpha value of 0.86 in the sample. Appendix B lists the

---

<sup>1</sup> Population estimates derived from *Higher Education Student Statistics: UK, 2018/19 – Student Numbers and Characteristics* published 20 January 2020. Available at <https://www.hesa.ac.uk/news/16-01-2020/sb255-higher-education-student-statistics/numbers>

369 results of the confirmatory factor analysis for the mental well-being scale. As noted, the  
370 scale had factor loadings that ranged from 0.500 to 0.797.

371 **Recreancy.** We measure recreancy as the amount of trust students place in their  
372 university and government to ensure their general well-being during the Covid-19  
373 pandemic. To measure recreancy, we rely on two specific questions about trust: (1) “I  
374 trust the university to look after my well-being during the coronavirus pandemic” and (2)  
375 “I trust the UK government to ensure that my university will look after my well-being  
376 during the coronavirus pandemic.” Responses to these two questions are scored from  
377 strongly disagree = 1 to strongly agree = 5. In particular, the mean (median) for trust in  
378 the university is 3.35 (3.0) with 7.8% of students reporting that they strongly disagree that  
379 they trust that their university is working to ensure their well-being and 14.5% of students  
380 reporting that they strongly agree that they trust that their university is working to ensure  
381 their well-being. Overall, just over 25% of students disagree or strongly disagree that their  
382 university will look after their general well-being during the Covid-19 pandemic. The  
383 mean (median) scores for trust for government to regulate UK universities to promote  
384 student well-being is low as the mean score for this question is 2.3 (2). Nearly 31.7% of  
385 students strongly disagree that they trust the UK government to ensure their university  
386 will look after their general well-being while only 4.3% strongly agree that they trust the  
387 government to ensure that the university will look after their general well-being.

388 **Financial Strain.** We use free school meal (FSM) status to identify students who  
389 are likely to come from households that are facing financial strain. In the UK, pupils who  
390 are at least seven years of age qualify for free school meals when the adults in the  
391 household claim one of several types of state benefits, including social security benefits in  
392 the form of income support, jobseeker’s allowance, income related employment support,  
393 child tax credits, working tax credits and/or universal credit. In the case of universal  
394 credit, applicants must demonstrate an annual net earned income £7,400 or less in

395 England or £14,000 or less in Northern Ireland to receive FSM (DFE 2018). While there  
396 are various potential measures of financial strain, Gorard (2012, p.1014) suggests that in  
397 the UK, using FSM as an indicator of poverty or financial hardship is “currently better  
398 than the alternatives...such as...household income, home resources, parental  
399 occupation(s) or social class.” Taylor (2018) also suggests that while parental education,  
400 occupation and income are likely to be the best indicators of socio-economic  
401 disadvantage, researchers should be cautious about recommending replacing FSM  
402 eligibility for other alternative indicators of economic hardship as those indicators are  
403 often difficult to collect and the gain in predictive power is modest. In the present study  
404 we believe it is unlikely that many students would be unable to accurately report the  
405 household income of their parents and caregivers. As a result, we employ the relatively  
406 simple measure of FSM to identify those students who have come from households that  
407 are likely to face economic hardships. We measure financial strain by asking students  
408 whether they received FSM in their last year of secondary school. Students who come  
409 from households that face economic hardship are therefore eligible for FSM are also  
410 likely to face financial strains at university where they often rely on support from their  
411 family (see Benson-Egglenton, 2019). Students scored “1” on the financial strain variable  
412 if they come from a household that received FSM in secondary school, while those who  
413 did not FSM were scored “0” on that variable.

414 ***Gender.*** To capture the relationship between gender and mental well-being  
415 identified in the literature we measure gender using a dichotomous variable. Students  
416 were asked to report their gender (i.e., ‘female’, ‘male’, ‘non-binary’, ‘third gender’ or  
417 self-described). In our analysis female, non-binary, third gender and self-described  
418 students were scored “1” while male students were scored “0”. As an alternative  
419 operationalisation of gender, we also compared female students (scored as “1”) to all  
420 other genders scored as “0.” We estimated a model for each operationalization of gender



421 and found that the models were nearly identical (not shown). That is, the alternative  
422 methods of measuring gender had no impact on this analysis as the coefficients, standard  
423 errors and goodness of fit statistics were identical in both models.

424 ***Race/Ethnicity.*** Students' Race/Ethnicity was measured using a 15-category  
425 nominal level variable. Results were largely clustered in White British category (i.e.,  
426 White English/White Welsh/White Scottish/White Northern Irish/ White British) and  
427 spread evenly with relatively low frequencies (n=4 to 23) among most other categories  
428 (e.g., African, Bangladeshi, Black British, Caribbean, Chinese, Indian, Pakistani, White  
429 and Asian). As a result, we created the dichotomous variable where White UK students  
430 were scored 1 and students of all other races and ethnicities were scored 0. This variable  
431 therefore measures self-identified race/ethnicity categorized into white/non-white which  
432 likely is associated with social advantages.

433 ***Age.*** Age is a ratio level variable that represents the student's age in years. The  
434 mean (median) student age was 23.0 (21.0) years old with a standard deviation of 6.5  
435 years.

436 ***Food Insecurity.*** Food insecurity was measured using the US Department of  
437 Agriculture's 6-item food security scale (see Patton-López, et al., 2014). The questions  
438 that made up the scale asked students to recall whether the following happened since the  
439 start of the Autumn 2020 term: (1) "The food that I bought just didn't last, and I didn't  
440 have money to get more"; (2) "I couldn't afford to eat balanced meals"; (3) "Did you cut  
441 the size of your meals or skip meals because there wasn't enough money for food?" and if  
442 "Yes"; (4) "how often did this happen?"; (5) "Did you ever eat less than you felt you  
443 should because there wasn't enough money for food?" and (6) "Were you hungry but  
444 didn't eat because there wasn't enough money for food?" The possible responses to  
445 questions 1 and 2 were 'never', 'sometimes' or 'often,' while the responses to questions 3,  
446 5 and 6 were "yes" or "no." Finally, the responses to question 4 was 'almost every

447 month', 'some months but not every month', or 'only 1 or 2 months.' Responses of  
448 "often" or "sometimes" on questions 1 and 2, and "yes" on questions 3, 5, and 6 were  
449 scored as 1. Responses of "almost every month" and "some months but not every month"  
450 on question 5 were scored 1. All other non-missing answers were scored 0. The sum of  
451 these six items ranged from 0 ('food security' – 52.8% of all students) to 6 ('very low  
452 food security' – 7.1% of all students). The mean (median) food insecurity score was 1.4  
453 (0). Cronbach's alpha for the food insecurity scale is 0.88, suggesting high internal  
454 consistency for this variable.

455 ***Housing Insecurity.*** Housing insecurity was measured by asking students the  
456 extent to which they agreed with the following statement since the start of the Autumn  
457 2020 school term: "I am finding it difficult to pay my rent or mortgage." Responses to this  
458 item ranged from 1 = Strongly Disagree to 5 = Strongly Agree. The mean (median)  
459 housing insecurity score was 2.5 (2.0).

460 ***Analytic Strategy.*** Building on previous research, the purpose of the current study  
461 is to present a conceptual model of student mental well-being during the Covid-19  
462 pandemic. As previously suggested, we hypothesize that recreancy, measured as trust in  
463 the University and Central Government, play an important role in shaping levels of  
464 student mental well-being. To carry out our analysis we estimated the structural equation  
465 model (SEM) presented in Figure 1 testing the hypotheses described in Table 1. We  
466 choose to use SEM because the literature suggests the relationships between food security,  
467 housing security, gender, race, age and economic status are complex and can take various  
468 paths to mental well-being. In addition, we believe that the focus by UK students on food  
469 and housing security is central to predicting student trust in their university and the  
470 government. In short, the SEM provided us with a method to present relatively complex  
471 relationships where there are more than one dependent variable in a parsimonious fashion.

472 The SEM was estimated using the Stata 15 sembuilder function for 467 students  
473 for whom all information was available. We use maximum likelihood estimations  
474 (without imputation or deletion). As previously noted, scales for food insecurity and  
475 mental well-being are acceptable. We assess the model fit using the Root Mean Square  
476 Error of Approximation (RMSEA) and the Comparative Fit Index (CFI).

## 477 **Results**

478 The descriptive statistics and bivariate correlation coefficients for the variables and  
479 scales in the analysis are in Appendix A. Those bivariate correlations indicate that student  
480 mental well-being is correlated with the food insecurity scale and three variables (housing  
481 insecurity, trust in their university and trust in government). An increase in food insecurity  
482 or housing insecurity across the sample of students is associated with a decrease in mental  
483 well-being. In addition, as trust in their university or trust in the government to regulate  
484 their university increases across students, student mental well-being also increases. Despite  
485 previous research findings on race, gender, past financial strain and age, none of these  
486 variables are associated with mental well-being in those bivariate correlations. However,  
487 we do observe that female students are more likely to face housing insecurity than male  
488 students. We also find that white students are less likely to trust the government than non-  
489 white students. Finally, we observe that higher levels of food insecurity and housing  
490 insecurity are associated with lower levels of trust in the university and lower levels of trust  
491 in the government. In short, the bivariate correlations suggest that student trust in the  
492 university and government are important, if not critical, variables in predicting student  
493 mental well-being.

494 Figure 2 presents the SEM hypothesized in Figure 1. Overall, the chi-square ( $\chi^2$ )  
495 for the model is 177.7, which is statistically significant ( $p < 0.05$ ) and leads us to reject the  
496 null hypothesis that the observed and predicted models are equal. However, chi-square is  
497 highly sensitive to sample size and not recommended for use with samples as large as the

498 one in the current study (Hox and Bechger 1998). As a result, we examine model  
499 goodness of fit using the comparative fit index (or CFI) and the root mean square error of  
500 approximation (or RMSEA). We choose the CFI because it is not sensitive to sample size  
501 and compares the fit of the observed model to the baseline model where all variables are  
502 uncorrelated (Lei and Wu 2007). The CFI for the model in Table 2 is 0.93, well above the  
503 acceptable benchmark value of 0.90 (Schumaker and Lomax 2010), equal to the value  
504 recommended by Byrne (1994) and near the conservative benchmark of 0.95  
505 recommended by Hu and Bentler (1999). The RMSEA is a parsimony-adjusted absolute  
506 fit indicator that examines whether our specified model in Table 2 reproduces the sample  
507 covariance matrix. The RMSEA for the model is 0.06, which is appropriately below the  
508 0.08 benchmark value (Hu and Bentler, 1999) and near the ideal 0.05 value recommended  
509 by Stieger (1990). Finally, it is worth pointing out that the when chi-square statistic for the  
510 model fit ( $\chi^2 = 177.7$ ) is divided by the model degrees of freedom ( $df=62$ ) as a relative  
511 adjustment for sample size, the result is 2.87. This value is near the ideal value of 2  
512 recommended by Ullman (2001) well below the common cut-off value of 5 recommended  
513 by Schumacker and Lomax (2010). In short, the model in Table 2 appears reasonable.

514         The hypotheses presented in Table 1 are evaluated in Figure 2. When we examine  
515 the direct effects of financial strain, gender, age and race/ethnicity on mental well-being  
516 (Hypotheses 1 to 4) we only find modest support for Hypothesis 2. That is, looking across  
517 students in the sample, female students tend to have slightly lower levels of mental well-  
518 being than male students ( $\beta = .10, p<0.05$ ). Turning to the relationship between food  
519 security, housing security and mental well-being (Hypotheses 5 and 6) we find that  
520 increasing levels of housing security are associated with decreased levels of mental well-  
521 being ( $\beta = -0.11, p<0.05$ ) and increasing levels of food insecurity are associated with  
522 decreasing levels of well-being ( $\beta = -0.11, p<0.05$ ). Thus, both hypotheses are supported.

523 Hypotheses 7 and 8 examine the impact of recreancy as measured through the  
524 variables trust in the university and trust in government university regulators. Figure 2  
525 suggests that trust in the university is positively correlated with mental well-being. As  
526 students report that they trust their university to look after their mental well-being, their  
527 subjective well-being scores increase ( $\beta = 0.22, p < 0.05$ ). The same relationship is found  
528 between government trust and mental well-being ( $\beta = 0.15, p < 0.05$ ). Both relationships  
529 support hypotheses (H7 and H8) and suggest that trust has a negative association with  
530 student mental well-being. Moreover, student trust in their university and the government  
531 has two of the largest effects on mental well-being, suggesting that recreancy is an  
532 important aspect of student well-being during the Covid-19 pandemic.

### 533 **Discussion and Conclusion**

534 There has been a recent call to investigate the students' mental well-being during  
535 the Covid-19 pandemic (Grubic et al., 2020). Although there have been several  
536 investigations into student well-being researchers have yet to examine the potential role of  
537 recreancy as measured by examining student perceptions of the failure of institutional  
538 actors such as universities and government regulators. As a result, there is a significant  
539 gap in current understandings of why some students may have particularly low levels of  
540 mental well-being during the Covid-19 pandemic. Our findings suggest that a lack of  
541 student trust in universities and government regulators may be an important factor in  
542 levels of mental well-being among students during ecological disasters. That is, recreancy  
543 appears to be important. While students have likely come to rely, at least partly, on  
544 university and government institutions to protect their mental well-being in the past, the  
545 perception by many students is that these actors can no longer be relied upon. Our  
546 analyses indicates that this form of recreancy could have an impact on student mental  
547 well-being.

548           Unfortunately, like most studies of student well-being our research suffers from  
549 some weaknesses. First, our sample is cross-sectional and does not consider how  
550 recreancy and mental well-being might have changed over time. As a result, it is difficult  
551 to say definitively whether levels of trust are impacted by Covid-19. We must point out,  
552 however, that there is pretty clear evidence that food insecurity and housing insecurity,  
553 things that should influence trust, have intensified during the Covid-19 pandemic (e.g.,  
554 see Glowacz & Schmits 2020; Grubic et al., 2020; Konstantopoulou et al., 2020; Yehudai  
555 et al., 2020).

556           Second, the cross-sectional nature of our study means that it is not possible to  
557 establish causation. In particular, the association between mental well-being modelled in  
558 our data could be reversed, such that low levels of student mental well-being give way to  
559 low levels of trust. To examine this issue in more detail we tried alternative SEM models  
560 where mental well-being was used to predict trust (not shown). However, these efforts  
561 failed to produce a better fitting model. Thus, while our approach provides some  
562 theoretical support for our particular findings that trust shapes well-being more research is  
563 needed. That is, these findings need to be replicated in other settings and using  
564 longitudinal designs to better understand whether the relationship between trust mental  
565 well-being.

566           Third, as this is an observational study rather than experimental study it is possible  
567 that the association between mental well-being and trust could be confounded by an  
568 important third factor such as personality attributes or academic achievement. For  
569 instance, personality attributes such as neuroticism extroversion, openness, agreeableness  
570 and conscientiousness may all influence levels of mental well-being and may also be  
571 related to how much faith and trust students place in the university and government during  
572 Covid-19. This study did not account for various personality factors that may influence

573 mental well-being and as a result, as is the case with all observational studies, some  
574 caution must be exercised when interpreting results.

575 Fourth, our research is based in the UK, and the finding regarding demographic  
576 variables, food insecurity and housing insecurity on mental well-being are largely  
577 consistent with the majority of studies on student mental health and mental well-being  
578 across the globe; it remains uncertain whether the mental well-being of higher education  
579 students in other countries would be similarly correlated with recreancy. In particular, the  
580 present survey was administered during a period of high infection rates and when UK  
581 students and young people were being blamed by politicians and media for spreading the  
582 virus (Horner, 2020; McIntyre et al., 2020). The consequence of this ‘blame’ may have  
583 created a unique situation where student trust or confidence was uniquely related to well-  
584 being. Moreover, trust in UK government was also at an all-time low in 2019 with 34% of  
585 the population stating that they 'almost never' trust government (Curtice et al., 2020).  
586 Thus, it is possible that these low levels of trust among the majority of the UK population  
587 is relatively unique, perhaps limiting the generalizability of the study results.

588 In the end, these results suggest that universities across the UK should pay more  
589 attention to the potential relationship between trust and mental well-being. Among the  
590 more consistent findings in the literature are our results concerning gender, previous  
591 financial strain, food security and housing security, all of which have been found to  
592 impact mental health and/or mental well-being. Our models also suggest that problems  
593 attributed to universities failure to act such as food insecurity and housing insecurity may  
594 increase feelings of recreancy and reduce mental well-being. Thus, we encourage  
595 universities to pay particular attention to the relationship between trust, food insecurity,  
596 housing insecurity, gender, financial strain and mental well-being. If these variables are  
597 related as we suggest then universities and government should ensure that students have  
598 sufficient and appropriate access to healthy, nutritious and culturally appropriate food,

599 especially during periods of lockdown or self-isolation when many students and their  
600 families may be struggling to source food. Moreover, governments and universities might  
601 also consider the role of housing insecurity in impacting trust and mental well-being. This  
602 is the case because many students report that they feel stuck paying for unaffordable  
603 contracts in residences in which they are confined (and unable to leave) and/or living in  
604 housing that is unsafe for vulnerable students given the overall numbers of students  
605 residing in a property. Finally, while additional investigations into student trust and  
606 mental well-being are needed, we suggests that universities and governments might,  
607 nevertheless, consider a communication strategy for improving trust among students to  
608 promote mental well-being, especially by noting how they are attenuating food and  
609 housing insecurity. Thus, even while we recognize the weaknesses associated with the  
610 current investigation, we also suggest that there is strong reason to want to promote  
611 gender equality, food and housing security that are found to be associated with mental  
612 well-being among university students. If an outcome of these efforts is to increase student  
613 trust in institutional actors in the education sector, all the better.



614       **References**

- 615       Andrews, F. M., & Robinson, J. P. (1991). Measures of subjective well-being. In  
616       Robinson, J. P., Shaver, P. R., & Wrightsman, L. S. (Eds.) *Measures of Personality and*  
617       *Social Psychological Attitudes, Volume 1* (pp. 61-110). San Diego, California: Academic  
618       Press.
- 619       Bantjes, J. R., Kagee, A., McGowan, T., & Steel, H. (2016). Symptoms of posttraumatic  
620       stress, depression, and anxiety as predictors of suicidal ideation among South African  
621       university students. *Journal of American College Health, 64*(6), 429-437.
- 622       Barnett, R. (2015). *Understanding the University: Institution, Idea, Possibilities*.  
623       Abingdon, UK: Routledge.
- 624       BBC News Scotland. (2020). Covid-hit university students: ‘Why have they sent us here?’  
625       *The BBC News* (25 September 2020). Available at <[https://www.bbc.co.uk/news/uk-](https://www.bbc.co.uk/news/uk-scotland-54292728)  
626       *scotland-54292728*>. Accessed 3 March 2021.
- 627       Bell, A. E., Spencer, S. J., Iserman, E., & Logel, C. E. (2003). Stereotype threat and  
628       women's performance in engineering. *Journal of Engineering Education, 92*(4), 307-312.
- 629       Benson-Eggleton, J. (2019) The financial circumstances associated with high and low  
630       well-being in undergraduate students: a case study of an English Russell Group  
631       institution, *Journal of Further and Higher Education, 43*,7, 901-913.
- 632       Bickerstaff, K., Simmons, P., & Pidgeon, N. (2008). Constructing responsibilities for risk:  
633       Negotiating citizen—state relationships. *Environment and Planning A, 40*(6), 1312-1330.
- 634       Brook, C. A., & Willoughby, T. (2015). The social ties that bind: Social anxiety and  
635       academic achievement across the university years. *Journal of Youth and Adolescence,*  
636       *44*(5), 1139-1152.
- 637       Brown, Kate (2020). The pandemic is not a natural disaster. *The New Yorker*. April 13.  
638       [https://www.newyorker.com/culture/annals-of-inquiry/the-pandemic-is-not-a-natural-](https://www.newyorker.com/culture/annals-of-inquiry/the-pandemic-is-not-a-natural-disaster)  
639       [disaster](https://www.newyorker.com/culture/annals-of-inquiry/the-pandemic-is-not-a-natural-disaster)

640 Broton, K. M., & Goldrick-Rab, S. (2018). Going without: An exploration of food and  
641 housing insecurity among undergraduates. *Educational Researcher*, 47(2), 121-133.

642 Broton, K. M. & Goldrick-Rab, S. (2016) The dark side of college (un)affordability:  
643 Food and housing insecurity in higher education. *Change: The Magazine of Higher*  
644 *Learning*, 48:1, 16-25.

645 Bruening, M., Argo, K., Payne-Sturges, D., & Laska, M. N. (2017). The struggle is real: a  
646 systematic review of food insecurity on postsecondary education campuses. *Journal of the*  
647 *Academy of Nutrition and Dietetics*, 117(11), 1767-1791.

648 Bruening, M., Brennhofner, S., Van Woerden, I., Todd, M., & Laska, M. (2016). Factors  
649 related to the high rates of food insecurity among diverse, urban college freshmen.  
650 *Journal of the Academy of Nutrition and Dietetics*, 116(9), 1450-1457.

651 Burris, J. L., Brechting, E. H., Salsman, J., & Carlson, C. R. (2009). Factors associated  
652 with the psychological well-being and distress of university students. *Journal of American*  
653 *College Health*, 57(5), 536-544.

654 Byrne, B. M. (1994). *Structural Equation Modeling with EQS*. Thousand Oaks, CA: Sage  
655 Publications.

656 Camart, N., & Romo, L. (2017). Predictors of stress in college students. *Frontiers in*  
657 *Psychology*, 8, e19.

658 Clare, L. & Byrd, M. (1998) The relationship between perceptions of financial distress  
659 and feelings of psychological well-being in New Zealand university students.  
660 *International Journal of Adolescence and Youth*, 7:3, 193-209.

661 Coffino, J. A., Spoor, S. P., Drach, R. D., & Hormes, J. M. (2020). Food insecurity among  
662 graduate students: Prevalence and association with depression, anxiety and stress. *Public*  
663 *Health Nutrition*. Advance online publication. DOI: [10.1017/s1368980020002001](https://doi.org/10.1017/s1368980020002001)

664 Cope, M. R., Slack, T., Blanchard, T. C., & Lee, M. R. (2016). It's not whether you win or  
665 lose, it's how you place the blame: Shifting perceptions of recreancy in the context of the  
666 Deepwater Horizon Oil Spill. *Rural Sociology*, 81(3), 295-315.

667 Cope, M. R., Slack, T., Jackson, J. E., & Parks, V. (2020). Community sentiment  
668 following the Deepwater Horizon oil spill disaster: a test of time, systemic community,  
669 and corrosive community models. *Journal of Rural Studies*, 74, 124-132.

670 Curtice, J., Hudson, N., and Montagu, I. (eds.) (2020) *British Social Attitudes: The 37th*  
671 *Report: Political Consequences of Brexit*. Available <  
672 [https://www.bsa.natcen.ac.uk/latest-report/british-social-attitudes-37/consequences-of-](https://www.bsa.natcen.ac.uk/latest-report/british-social-attitudes-37/consequences-of-brexit.aspx)  
673 [brexit.aspx](https://www.bsa.natcen.ac.uk/latest-report/british-social-attitudes-37/consequences-of-brexit.aspx)>. London: The National Centre for Social Research

674 Davoren, M. P., Fitzgerald, E., Shiely, F., & Perry, I. J. (2013). Positive mental health and  
675 well-being among a third level student population. *PLoS One*, 8(8), e74921.

676 Dawson, N. (2021). University students call for tuition fees refund as online teaching is  
677 inadequate. *Leicestershire Live* (10 January 2021). Available <  
678 [https://www.leicesterm Mercury.co.uk/news/local-news/university-students-call-tuition-fees-](https://www.leicesterm Mercury.co.uk/news/local-news/university-students-call-tuition-fees-4870511)  
679 [4870511](https://www.leicesterm Mercury.co.uk/news/local-news/university-students-call-tuition-fees-4870511)>. Accessed 3 March 2021.

680 Day, A. L., & Livingstone, H. A. (2003). Gender differences in perceptions of stressors  
681 and utilization of social support among university students. *Canadian Journal of*  
682 *Behavioural Science*, 35(2), e73.

683 de la Torre, J. (2019). *Duty of Care and Risk Management for Institutions of Higher*  
684 *Education* (Thesis, Concordia University, St. Paul). Retrieved from  
685 [https://digitalcommons.csp.edu/cup\\_commons\\_grad\\_edd/429](https://digitalcommons.csp.edu/cup_commons_grad_edd/429). Accessed 4 March 2021.

686 Department for Education (DfE). (2018). Free School Meals: Guidance for local  
687 authorities, maintained schools, academies and free schools. Available online at  
688 <[https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment](https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/700139/Free_school_meals_guidance_Apr18.pdf)  
689 [\\_data/file/700139/Free\\_school\\_meals\\_guidance\\_Apr18.pdf](https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/700139/Free_school_meals_guidance_Apr18.pdf)> Accessed 1 March 2021.

690 Diamond, K. K., Stebleton, M. J., & delMas, R. C. (2020). Exploring the relationship  
691 between food insecurity and mental health in an undergraduate student population.  
692 *Journal of Student Affairs Research and Practice*, 57(5), 546-550.

693 Dyrbye, L. N., Thomas, M. R., Eacker, A., Harper, W., Massie, F. S., Power, D. V., ... &  
694 Shanafelt, T. D. (2007). Race, ethnicity, and medical student well-being in the United  
695 States. *Archives of Internal Medicine*, 167(19), 2103-2109.

696 Durkheim, Emile. 1933. *The division of labor in society* [1893] George Simpson, trans.  
697 New York, New York: Macmillan.

698 Dusselier, L., Dunn, B., Wang, Y., Shelley iI, M. C., & Whalen, D. F. (2005). Personal,  
699 health, academic, and environmental predictors of stress for residence hall students.  
700 *Journal of American College Health*, 54(1), 15-24.

701 Eisenberg, D., Golberstein, E., & Gollust, S. E. (2007). Help-seeking and access to mental  
702 health care in a university student population. *Medical Care*, 45(7): 594-601.

703 Eisenberg, D., Golberstein, E., Hunt, J.B. (2009) Mental Health and academic success in  
704 college. *B.E. Journal of Economic Analysis & Policy*, 9(1):1-35

705 Eisenberg, D., Gollust, S. E., Golberstein, E., & Hefner, J. L. (2007). Prevalence and  
706 correlates of depression, anxiety, and suicidality among university students. *American*  
707 *Journal of Orthopsychiatry*, 77(4), 534-542.

708 El Ansari, W., Labeeb, S., Moseley, L., Kotb, S., & El-Houfy, A. (2013). Physical and  
709 psychological well-being of university students: Survey of eleven faculties in Egypt.  
710 *International Journal of Preventive Medicine*, 4(3), e293.

711 El Ansari, W., & Stock, C. (2010). Is the health and well-being of university students  
712 associated with their academic performance? Cross sectional findings from the United  
713 Kingdom. *International Journal of Environmental Research and Public Health*, 7(2), 509-  
714 527.

715 El Ansari, W., Stock, C., Hu, X., Parke, S., Davies, S., John, J., Adetunji, H., Stoate, M.,  
716 Deeny, P., Phillips, C., & Mabhala, A. (2011). Feeling healthy? A survey of physical and  
717 psychological well-being of students from seven universities in the UK. *International*  
718 *Journal of Environmental Research and Public Health*, 8(5): 1308-1323.

719 Fat, L. N., Scholes, S., Boniface, S., Mindell, J., & Stewart-Brown, S. (2017). Evaluating  
720 and establishing national norms for mental well-being using the short Warwick–  
721 Edinburgh Mental Well-being Scale (SWEMWBS): findings from the Health Survey for  
722 England. *Quality of Life Research*, 26(5), 1129-1144.

723 Freudenburg, W. R. (2000). The ‘Risk Society’ reconsidered: Recreancy, the division of  
724 labor, and risks to the social fabric. In Cohen, M.J (Ed.), *Risk in the Modern Age*. (pp.  
725 107–122). New York, New York: St. Martin.

726 Freudenburg, W. R. (1993). Risk and recreancy: Weber, the division of labor, and the  
727 rationality of risk perceptions. *Social forces*, 71(4), 909-932.

728 Freudenburg, W. R., R. Gramling, S. Laska, & Erikson, K.T., (2009). *Catastrophe in the*  
729 *making: The engineering of Katrina and the disasters of tomorrow*. Washington, DC:  
730 Island Press.

731 Fung, S. F. (2019). Psychometric evaluation of the Warwick-Edinburgh Mental Well-  
732 being Scale (WEMWBS) with Chinese university students. *Health and Quality of Life*  
733 *Outcomes*, 17(1), e46.

734 Frongillo, E. A., Nguyen, H. T., Smith, M. D., & Coleman-Jensen, A. (2017). Food  
735 insecurity is associated with subjective well-being among individuals from 138 countries  
736 in the 2014 Gallup World Poll. *The Journal of Nutrition*, 147(4), 680-687.

737 Galbraith, N. D., Brown, K. E., & Clifton, E. (2014). A survey of student nurses' attitudes  
738 toward help seeking for stress. *Nursing Forum*, 49(3), 171-181.

739 Gill, D. A., Ladd, A. E., & Marszalek, J. (2007). College students' experiences with  
740 Hurricane Katrina: A comparison between students from Mississippi State University and

741 three New Orleans universities. *Journal of the Mississippi Academy of Sciences*, 52(4),  
742 262-281.

743 Gill, D. A., Ritchie, L. A., & Picou, J. S. (2016). Sociocultural and psychosocial impacts  
744 of the Exxon Valdez oil spill: Twenty-four years of research in Cordova, Alaska. *The*  
745 *Extractive Industries and Society*, 3(4), 1105-1116.

746 Glowacz, F., & Schmits, E. (2020). Psychological distress during the COVID-19  
747 lockdown: The young adults most at risk. *Psychiatry Research*, 293, e113486.

748 Goldrick-Rab, S., Coca, V., Kienzl, G., Welton, C. R., Dahl, S., & Magnelia, S. (2020).  
749 *Real college during the pandemic: New evidence on basic needs insecurity and student*  
750 *well-being*. Available at <https://scholarworks.boisestate.edu/covid/5/>.

751 Gorard, S. (2012). Who is eligible for free school meals? Characterising free school meals  
752 as a measure of disadvantage in England. *British Educational Research Journal*, 38(6),  
753 1003-1017.

754 Grubic, N., Badovinac, S., & Johri, A.M. (2020). Student mental health in the midst of the  
755 COVID-19 pandemic: A call for further research and immediate solutions. *International*  
756 *Journal of Social Psychiatry*, Advance online publication. DOI:  
757 <https://doi.org/10.1177/0020764020925108>.

758 Hall, R. (2020). Students feel vulnerable: How Covid-19 has put a strain on mental health.  
759 *The Guardian* (18 November 2020). Available at  
760 <[https://www.theguardian.com/education/2020/nov/18/students-feel-vulnerable-how-](https://www.theguardian.com/education/2020/nov/18/students-feel-vulnerable-how-covid-19-has-put-a-strain-on-mental-health)  
761 [covid-19-has-put-a-strain-on-mental-health](https://www.theguardian.com/education/2020/nov/18/students-feel-vulnerable-how-covid-19-has-put-a-strain-on-mental-health)>. Accessed 2 March 2021.

762 Hardeman, R. R., Przedworski, J. M., Burke, S. E., Burgess, D. J., Phelan, S. M., Dovidio,  
763 J. F., ... & van Ryn, M. (2015). Mental well-being in first year medical students: A  
764 comparison by race and gender. *Journal of Racial and Ethnic Health Disparities*, 2(3),  
765 403-413.

766 Haskett, M. E., Majumder, S., Kotter-Grühn, D., & Gutierrez, I. (2020). The role of  
767 university students' wellness in links between homelessness, food insecurity, and  
768 academic success. *Journal of Social Distress and Homelessness*, Advance online  
769 publication. DOI: <https://doi.org/10.1080/10530789.2020.1733815>.

770 Hattangadi, N., Vogel, E., Carroll, L. J., & Côté, P. (2019). Everybody I know is always  
771 hungry... but nobody asks why: University students, food insecurity and mental health.  
772 *Sustainability*, 11(6), e1571.

773 Heflin CM, Ziliak JP. (2008) Food insufficiency, food stamp participation, and mental  
774 health. *Social Science Quarterly*, 89(3), 706–727.

775 Hopegood, R. (2020). How university students have been let down during the Covid-19  
776 pandemic. *The Sun* (6 December 2020). Available at  
777 <[https://www.thesun.co.uk/fabulous/13356230/inside-look-university-students-let-down-](https://www.thesun.co.uk/fabulous/13356230/inside-look-university-students-let-down-covid-19-outbreak/)  
778 [covid-19-outbreak/](https://www.thesun.co.uk/fabulous/13356230/inside-look-university-students-let-down-covid-19-outbreak/)>. Accessed 3 March 2021.

779 Howell, R. T., & Howell, C. J. (2008). The relation of economic status to subjective well-  
780 being in developing countries: A meta-analysis. *Psychological Bulletin*, 134(4), 536-560.

781 Hox, J. & Bechger, T.M. (1998). An introduction to structural equation modeling. *Family*  
782 *Science Review*, 11, 354-373.

783 Hu, L. & Bentler, P. M. (1999). Cutoff criteria for fit indexes in covariance structure  
784 analysis: Conventional criteria versus new alternatives. *Structural Equation Modeling*,  
785 6(1), 1-55.

786 Hurst, C. S., Baranik, L. E., & Daniel, F. (2013). College student stressors: A review of  
787 the qualitative research. *Stress and Health*, 29(4), 275-285.

788 Hughes, R., Serebryanikova, I., Donaldson, K., and Leveritt, M. (2011). Student food  
789 insecurity: The skeleton in the university closet. *Nutrition & Dietetics*, 68(1), 27-32.

790 Horner, C. (2020). Is it fair to blame university students for the spread of coronavirus?

791 *ITV* (5 November 2020). Available at <[https://www.itv.com/news/central/2020-11-04/is-](https://www.itv.com/news/central/2020-11-04/is-it-fair-to-blame-university-students-for-the-spread-of-coronavirus)  
792 [it-fair-to-blame-university-students-for-the-spread-of-coronavirus](https://www.itv.com/news/central/2020-11-04/is-it-fair-to-blame-university-students-for-the-spread-of-coronavirus) />. Accessed 3 March  
793 2021.

794 Jones, A.D. (2017). Food insecurity and mental health status: a global analysis of 149  
795 countries. *American Journal of Preventive Medicine*, 53(2), 264–273.

796 Kannangara, C. S., Allen, R. E., Waugh, G., Nahar, N., Khan, S. Z. N., Rogerson, S., &  
797 Carson, J. (2018). All that glitters is not grit: Three studies of grit in university students.  
798 *Frontiers in Psychology*, 9, 1539.

799 Kecojevic, A., Basch, C. H., Sullivan, M., & Davi, N. K. (2020). The impact of the  
800 COVID-19 epidemic on mental health of undergraduate students in New Jersey, cross-  
801 sectional study. *PloS One*, 15(9), e0239696.

802 Kennelly, L. (2020). New lockdown: Manchester university students pull down campus  
803 fences. *The BBC News*. Available at <[https://www.bbc.co.uk/news/uk-england-](https://www.bbc.co.uk/news/uk-england-manchester-54833331)  
804 [manchester-54833331](https://www.bbc.co.uk/news/uk-england-manchester-54833331)>. Accessed 3 March 2021.

805 Knol, L. L., Robb, C. A., McKinley, E. M., & Wood, M. (2018). Food insecurity is related  
806 to financial aid debt among college students. *Journal of Family & Consumer Sciences*,  
807 110(4), 35-41.

808 Konstantopoulou, G., Pantazopoulou, S., Iliou, T., & Raikou, N. (2020). Stress and  
809 depression in the exclusion of the Covid-19 pandemic in Greek university students.  
810 *European Journal of Public Health Studies*,3(1). Advance online publication. DOI:  
811 [10.46827/ejphs.v3i1.74](https://doi.org/10.46827/ejphs.v3i1.74)

812 Ladd, A. E., Gill, D. A., & Marszalek, J. (2007). Riders from the storm: Disaster  
813 narratives of relocated New Orleans college students in the aftermath of Hurricane  
814 Katrina. *Journal of Public Management and Social Policy*, 13(2), 51-80.

815 Lairio, M., Puukari, S., & Kouvo, A. (2013). Studying at university as part of student life  
816 and identity construction. *Scandinavian Journal of Educational Research*, 57(2), 115-131.



817 Lazarus, R. S., & Folkman, S. (1984). *Stress, appraisal, and coping*. New York, New  
818 York: Springer.

819 Lee, R. L., & Loke, A. J. Y. (2005). Health-promoting behaviors and psychosocial well-  
820 being of university students in Hong Kong. *Public Health Nursing, 22*(3), 209-220.

821 Lee, S. (2020). Subjective well-being and mental health during the pandemic outbreak:  
822 Exploring the role of institutional trust. *Research on Aging*, Advance online publication:  
823 <https://doi.org/10.1177/0164027520975145>.

824 Lee Smith, L. J., Trott, M., Yakkundi, A., Butler, L., Barnett, Y., Armstrong, N. C., ... &  
825 Sánchez, G. F. L. (2020). The association between screen time and mental health during  
826 COVID-19: A cross sectional study. *Psychiatry Research*. Advance online publication:  
827 DOI: [10.1016/j.psychres.2020.113333](https://doi.org/10.1016/j.psychres.2020.113333).

828 Leung, C. W., Farooqui, S., Wolfson, J. A., & Cohen, A. J. (2020). Understanding the  
829 cumulative burden of basic needs insecurities: associations with health and academic  
830 achievement among college students. *American Journal of Health Promotion*, Advance  
831 online publication: <https://doi.org/10.1177/0890117120946210>.

832 Lei, P. W., & Wu, Q. (2007). Introduction to structural equation modeling: Issues and  
833 practical considerations. *Educational Measurement: Issues and Practice, 26*(3), 33-43.

834 Lin, S. H., & Huang, Y. C. (2014). Life stress and academic burnout. *Active Learning in  
835 Higher Education, 15*(1), 77-90.

836 Linden, B., & Jurdi-Hage, R. (2017). Examining the predictors of mental health outcomes  
837 among undergraduate postsecondary students in Canada. *Journal of Social, Behavioral,  
838 and Health Sciences, 11*(1), 1-30.

839 Marshall, C. A., Davidson, L., Li, A., Gewurtz, R., Roy, L., Barbic, S., Kirsh, B. &  
840 Lysaght, R. (2019). Boredom and meaningful activity in adults experiencing  
841 homelessness. *Canadian Journal of Occupational Therapy, 85* (5): 357-370.

842 Mair, D. (2015). *Short-Term Counselling in Higher Education: Context, Theory and*  
843 *Practice*. Abingdon, UK: Routledge.

844 Martinez, S. M., Frongillo, E. A., Leung, C., & Ritchie, L. (2020). No food for thought:  
845 Food insecurity is related to poor mental health and lower academic performance among  
846 students in California's public university system. *Journal of Health Psychology, 25*(12),  
847 1930-1939.

848 Maroto, M.E., Snelling, A., & Linck, H. (2015) Food insecurity among community  
849 college students: Prevalence and association with grade point average, *Community*  
850 *College Journal of Research and Practice, 39*(6), 515-526.

851 McArthur, L.H., Ball, L., Danek, A.C., & Holbert, D. (2018). A high prevalence of food  
852 insecurity among university students in Appalachia reflects a need for educational  
853 interventions and policy advocacy. *Journal of Nutrition Education and Behavior, 50* (6):  
854 564-572.

855 McIntyre, N., Batty, D., Duncan, P., (2020). Fears grow student Covid infections will  
856 spread into local areas in England and Wales. *The Guardian*. (12 October 2020).  
857 Available at <[https://www.theguardian.com/education/2020/oct/12/fears-grow-student-](https://www.theguardian.com/education/2020/oct/12/fears-grow-student-covid-infections-england-wales-will-spread-into-local-communities)  
858 [covid-infections-england-wales-will-spread-into-local-communities](https://www.theguardian.com/education/2020/oct/12/fears-grow-student-covid-infections-england-wales-will-spread-into-local-communities)>. Accessed 3 March  
859 2021.

860 McSpirit, S., Scott, S. L., Hardesty, S., & Welch, R. (2005). EPA actions in post disaster  
861 Martin County, Kentucky: An analysis of bureaucratic slippage and agency recreancy.  
862 *Journal of Appalachian Studies, 11*(1/2), 30-59.

863 Micevski, D.A., Thornton, L.E., & Brockington, S. (2014). Food insecurity among  
864 university students in Victoria: A pilot study. *Nutrition & Dietetics, 71*(4), 258-264.

865 Moore, R. (2021). The free-market gamble: Has Covid broken UK universities? *The*  
866 *Guardian* (17 January 2021). Available

867 <[https://www.theguardian.com/education/2021/jan/17/free-market-gamble-has-covid-  
868 broken-uk-universities](https://www.theguardian.com/education/2021/jan/17/free-market-gamble-has-covid-<br/>868 broken-uk-universities)>. Accessed 2 March 2021.

869 Morens, D. M., Breman, J. G., Calisher, C. H., Doherty, P. C., Hahn, B. H., Keusch, G.  
870 T., Kramer, L.D., LeDuc, J.W., Monath, T.P., & Taubenberger, J. K. (2020). The origin of  
871 COVID-19 and why it matters. *The American Journal of Tropical Medicine and Hygiene*,  
872 *103*(3), 955-959.

873 Morris, L. M., Smith, S., Davis, J., & Null, D.B. (2016). The prevalence of food security  
874 and insecurity among Illinois university students. *Journal of Nutrition Education and  
875 Behavior* 48 (6), 376-382.

876 Mulder, A.M., and Cashin, A. (2015). Health and well-being in students with very high  
877 psychological distress from a regional Australian university. *Advances in Mental Health*  
878 *13*(1), 72-83.

879 Mushonga, D. R., & Henneberger, A. K. (2020). Protective factors associated with  
880 positive mental health in traditional and nontraditional Black students. *American Journal  
881 of Orthopsychiatry*, *90*(1), 147–160.

882 Nazmi, A., Martinez, S., Byrd, A., Robinson, D., Bianco, S., Maguire, J., ... & Ritchie, L.  
883 (2019). A systematic review of food insecurity among US students in higher education.  
884 *Journal of Hunger & Environmental Nutrition*, *14*(5), 725-740.

885 Onapa, E. (2020). University during Covid: I'm back on campus and student life is  
886 unrecognisable. *inews* (23 September 2020). Available  
887 <[https://inews.co.uk/opinion/university-during-covid-student-life-campus-restrictions-  
888 648503](https://inews.co.uk/opinion/university-during-covid-student-life-campus-restrictions-<br/>888 648503)>. Accessed 2 March 2021.

889 Palan, S., & Schitter, C. (2018). Prolific. ac—A subject pool for online experiments.  
890 *Journal of Behavioral and Experimental Finance*, *17*, 22-27.

891 Patton-López, M. M., López-Cevallos, D. F., Cancel-Tirado, D. I., & Vazquez, L. (2014).  
892 Prevalence and correlates of food insecurity among students attending a midsize rural  
893 university in Oregon. *Journal of Nutrition Education and Behavior*, 46(3), 209-214.

894 Payne-Sturges, D. C., Tjaden, A., Caldeira, K. M., Vincent, K. B., & Arria, A. M. (2018).  
895 Student hunger on campus: Food insecurity among college students and implications for  
896 academic institutions. *American Journal of Health Promotion*, 32(2), 349-354.

897 Pedrelli, P., Nyer, M., Yeung, A., Zulauf, C., & Wilens, T. (2015). College students:  
898 mental health problems and treatment considerations. *Academic Psychiatry*, 39(5), 503-  
899 511.

900 Phillips, E., McDaniel, A., & Croft, A. (2018). Food insecurity and academic disruption  
901 among college students. *Journal of Student Affairs Research and Practice*, 55(4), 353-  
902 372.

903 Prelow, H.M., Mosher, C.E., Bowman M. (2006). Perceived racial discrimination, social  
904 support, and psychological adjustment among African American college students. *Journal*  
905 *of Black Psychology*, 32, 442–454.

906 Raskind, I. G., Haardorfer, R., & Berg, C. J. (2019). Food insecurity, psychosocial health,  
907 and academic performance among college and university students in Georgia, USA.  
908 *Public Health Nutrition*, 22(3), 476-485.

909 Ritchie, L. A. (2012). Individual stress, collective trauma, and social capital in the wake  
910 of the Exxon Valdez oil spill. *Sociological Inquiry*, 82(2), 187-211.

911 Ritchie, L. A. and Gill, D. A. (2007). Social capital theory as an integrating framework for  
912 technological disaster research. *Sociological Spectrum* 27:1–26.

913 Ritchie, L. A., Gill, D. A., & Farnham, C. N. (2013). Recreancy revisited: Beliefs about  
914 institutional failure following the Exxon Valdez oil spill. *Society & Natural Resources*,  
915 26(6), 655-671.

916 Ritchie, L. A., Gill, D. A., & Long, M. A. (2018). Mitigating litigating: An examination of  
917 psychosocial impacts of compensation processes associated with the 2010 BP Deepwater  
918 Horizon oil spill. *Risk Analysis*, 38(8), 1656-1671.

919 Roberts, R., Golding, J., Towell, T., & Weinreb, I. (1999). The effects of economic  
920 circumstances on British students' mental and physical health. *Journal of American*  
921 *College Health*, 48(3), 103-109.

922 Saleh, D., Camart, N., & Romo, L. (2017). Predictors of stress in college students.  
923 *Frontiers in Psychology*, 8, e19.

924 Savage, M. J., James, R., Magistro, D., Donaldson, J., Healy, L. C., Nevill, M., & Hennis,  
925 P. J. (2020). Mental health and movement behaviour during the COVID-19 pandemic in  
926 UK university students: Prospective cohort study. *Mental Health and Physical Activity*,  
927 19, e100357.

928 Shereen, M. A., Khan, S., Kazmi, A., Bashir, N., & Siddique, R. (2020). COVID-19  
929 infection: Origin, transmission, and characteristics of human coronaviruses. *Journal of*  
930 *Advanced Research*, 24, 91-98.

931 Schumacker, R. E., & Lomax, R. G. (2010). *A Beginner's Guide to Structural Equation*  
932 *Modeling*. New York, NY: Routledge.

933 Son, C., Hegde, S., Smith, A., Wang, X., & Sasangohar, F. (2020). Effects of COVID-19  
934 on College Students' Mental Health in the United States: Interview Survey Study. *Journal*  
935 *of Medical Internet Research*, 22(9), e21279.

936 Stahre, M., VanEenwyk, J., Siegel, P., & Njai, R. (2015). Peer reviewed: Housing  
937 insecurity and the association with health outcomes and unhealthy behaviors, Washington  
938 State, 2011. *Preventing chronic disease*, 12, e109.

939 Steele, C.M. & Aronson J. (1995). Stereotype threat and the intellectual test performance  
940 of African Americans. *Journal of Personality and Social Psychology*, 69(5):797-811.

941 Straub, A. M. (2020). “Natural disasters don’t kill people, governments kill people:”  
942 hurricane Maria, Puerto Rico–recreancy, and ‘risk society’. *Natural Hazards*. Advanced  
943 online publication. DOI: <https://doi.org/10.1007/s11069-020-04368-z>.

944 Stewart-Brown, S., Tennant, A., Tennant, R., Platt, S., Parkinson, J., & Weich, S. (2009).  
945 Internal construct validity of the Warwick-Edinburgh mental well-being scale  
946 (WEMWBS): a Rasch analysis using data from the Scottish health education population  
947 survey. *Health and Quality of Life Outcomes*, 7(1):15. DOI: [10.1186/1477-7525-7-15](https://doi.org/10.1186/1477-7525-7-15).

948 Steiger, J. H. (1990). Structural model evaluation and modification: An interval estimation  
949 approach. *Multivariate Behavioural Research*, 25: 173-180.

950 Summers, E. M., Morris, R. C., Bhutani, G. E., Rao, A. S., & Clarke, J. C. (2020). A  
951 survey of psychological practitioner workplace well-being. *Clinical Psychology &*  
952 *Psychotherapy*, Advanced online publication. DOI: <https://doi.org/10.1002/cpp.2509>

953 Taylor, C. (2018) The Reliability of Free School Meal Eligibility as a Measure of Socio-  
954 Economic Disadvantage: Evidence from the Millennium Cohort Study in Wales. *British*  
955 *Journal of Educational Studies*, 66(1): 29-51, DOI: 10.1080/00071005.2017.1330464.

956 Topham, P., & Moller, N. (2011). New students' psychological well-being and its relation  
957 to first year academic performance in a UK university. *Counselling and Psychotherapy*  
958 *Research*, 11(3), 196-203.

959 Tennant, R., Hiller, L., Fishwick, R., Platt, S., Joseph, S., Weich, S., Parkinson, J.S., &  
960 Stewart-Brown, S. (2007). The Warwick-Edinburgh mental well-being scale (WEMWBS):  
961 development and UK validation. *Health and Quality of life Outcomes*, 5(1), e63.

962 UC Global Food Initiative. (2017, December). *Global Food Initiative: Food and Housing*  
963 *Security at the University of California*. California, USA: University of California.  
964 Available at [http://www.ucop.edu/global-food-initiative/\\_files/food-housing-security.pdf](http://www.ucop.edu/global-food-initiative/_files/food-housing-security.pdf)

965 Ullman, J. B. (2001). Structural equation modeling. Pp. 653-771 in Tabachnick, B.G. & L.  
966 S. Fidell (2001). *Using Multivariate Statistics*. Needham Heights, MA: Allyn & Bacon.

967 Voltmer, E., Kötter, T., & Spahn, C. (2012). Perceived medical school stress and the  
968 development of behavior and experience patterns in German medical students. *Medical*  
969 *Teacher, 34*(10), 840-847.

970 Wallace, D. D., Boynton, M. H., & Lytle, L. A. (2017). Multilevel analysis exploring the  
971 links between stress, depression, and sleep problems among two-year college students.  
972 *Journal of American College Health, 65*(3), 187-196.

973 Wang, C. C. D., & Castañeda-Sound, C. (2008). The role of generational status, self-  
974 esteem, academic self-efficacy, and perceived social support in college students'  
975 psychological well-being. *Journal of College Counseling, 11*(2), 101-118.

976 World Health Organization. (2004). *Promoting mental health: concepts, emerging*  
977 *evidence, practice* (Summary Report). Geneva, Switzerland: World Health Organization.

978 Wood, J. L., & Harris III, F. (2018). Experiences with “acute” food insecurity among  
979 college students. *Educational Researcher, 47*(2), 142-145.

980 Yehudai, M., Bender, S., Gritsenko, V., Konstantinov, V., Reznik, A., & Isralowitz, R.  
981 (2020). COVID-19 fear, mental health, and substance misuse conditions among university  
982 social work students in Israel and Russia. *International Journal of Mental Health and*  
983 *Addiction*, Advanced online Publication. doi: [10.1007/s11469-020-00360-7](https://doi.org/10.1007/s11469-020-00360-7).

984 Yilmazli Trout, I., & Alsandor, D. J. (2020). Graduate student well-being: Learning and  
985 living in the U.S. during the COVID-19 pandemic. *International Journal of*  
986 *Multidisciplinary Perspectives in Higher Education, 5*(1), 150-155.  
987 <https://doi.org/10.32674/jimphe.v5i1.2576>

988 Zigmont, V. A., Linsmeier, A. M., & Gallup, P. (2019). Understanding the why of college  
989 student food insecurity. *Journal of Hunger & Environmental Nutrition*, Advanced online  
990 publication. <https://doi.org/10.1080/19320248.2019.1701600>.

991

992 **Table 1. Hypotheses (paths) tested in University Student Mental Well-Being Model**

Hypothesis	Selected Literature
Financial Strain has a direct influence on mental well-being. Students who come from households that are financially strained are likely to face lower levels of mental well-being than students who come from households who have not faced economic disadvantage. (H1)	Ansari et al., (2011); Benson-Eggleton (2019); Eisenberg et al. (2007); Lange & Byrd (1998); Mulder & Cashin (2015); Stallman (2010)
Gender has a direct influence on mental well-being. Female students will have lower levels of mental well-being than male students. (H2)	Day & Livingstone (2003); Eisenberg et al. (2007); Saleh et al. (2017); except see Ansari & Stock (2010); Lee & Loke (2005)
Race/Ethnicity has a direct influence on mental well-being. White students will have higher levels of mental well-being than other students (H3).	Aronson et al. (2013); Ben-Ari (2004); Blaine & Crocker, (1995); Cokley et al. (2013); Dyrbye et al. (2007); Griffith et al. (2017); Hardeman et al. (2015); Iwamasa & Kooreman (1995); Prelow et al. (2006); Steele et al.(1995)
Age has a direct effect on mental well-being. Older students will have higher levels of mental well-being than younger students (H4).	Pedrelli et al. (2015); except see Galbraith & Merrill 2015; Saleh et al., (2017); Voltmer et al. (2012)
Food and Housing Security will have a direct influence on mental well-being. Students who are food insecure will have lower levels of mental well-being (H5). Students who are housing insecure will have lower levels of mental well-being (H6).	Broton & Goldrick-Rab (2016); Frongillo et al. (2017); Heflin & Ziliak (2008); Howell & Howell (2008); Jones (2017); Lee (2020); Payne-Sturges et al. (2018); Stahr et al. (2015)
Trust in Government will have a direct influence on student mental well-being. Students who trust the government to protect their health during the pandemic will have higher levels well-being than students who do not trust the government to protect their health during Covid-19 (H7).	Freudenburg et al. (1993, 2000)
Trust in their University will have a direct influence on student well-being. Students who trust their university to protect their health during the pandemic will have higher levels mental well-being than students who do not trust their university to protect their health during Covid-19 (H8).	Freudenburg et al. (1993, 2000)

993



Figure 1: Conceptual Model of University Student Mental Wellbeing

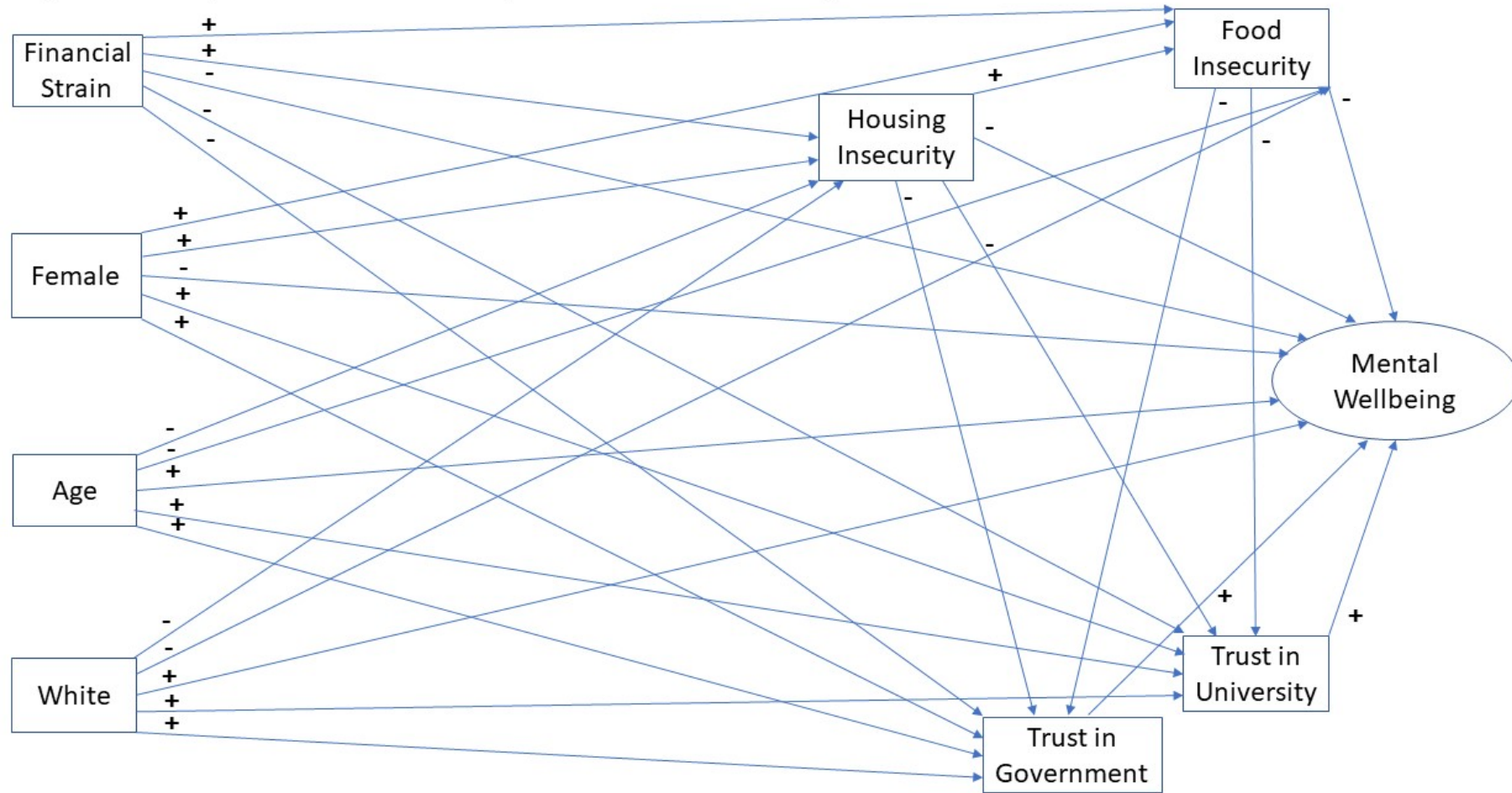
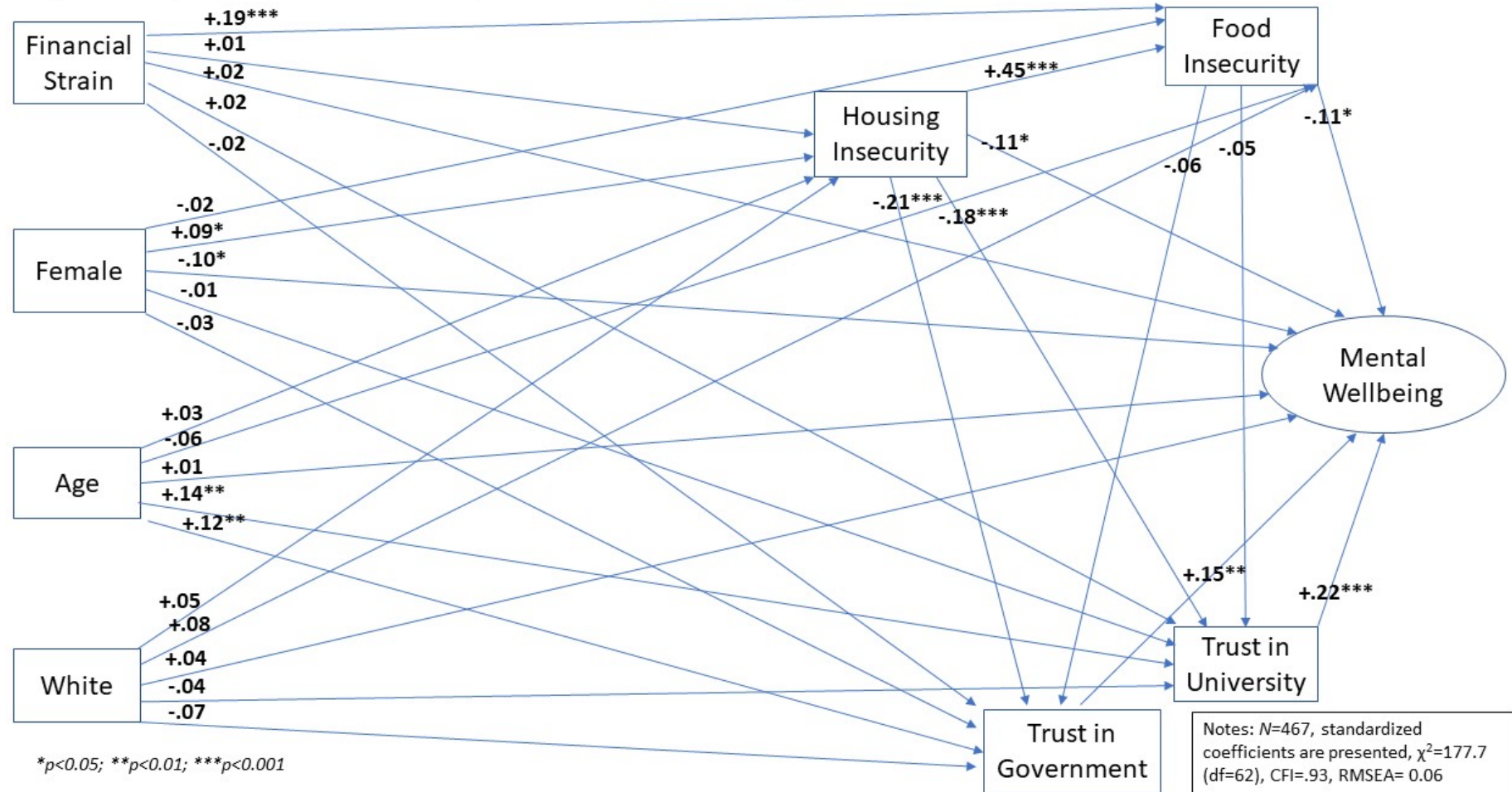


Figure 2: Empirical Model of University Student Mental Wellbeing



**Appendix A. Bivariate Correlations and Descriptive Statistics for Variables in the Study.**

	<u>1</u>	<u>2</u>	<u>3</u>	<u>4</u>	<u>5</u>	<u>6</u>	<u>7</u>	<u>8</u>	<u>9</u>
1. Mental Well-Being	1.00								
2. Financial Strain	0.00	1.00							
3. White	0.02	-0.01	1.00						
4. Female	-0.09	0.00	0.00	1.00					
5. Age	0.02	0.05	0.15*	0.00	1.00				
6. Food Insecurity	-0.15*	0.17*	0.08	0.02	0.05	1.00			
7. Housing Insecurity	-0.19*	0.02	0.04	0.10*	0.03	0.45*	1.00		
8. Trust Their University	0.28*	-0.03	-0.07#	-0.02	0.09*	-0.17*	-0.20*	1.00	
9. Trust in Government	0.24*	-0.07#	-0.08*	-0.03	0.07	-0.17*	-0.20*	0.51*	1.00
Mean	19.93	0.22	0.62	0.65	22.95	2.35	2.43	3.35	2.27
Median	19.25	0.00	1.00	1.00	21.00	2.00	0.00	3.00	2.00
Standard Deviation	4.00	0.42	0.49	0.48	6.47	1.09	2.95	1.15	1.18
Min. Score	7.00	0.00	0.00	0.00	18.00	1.00	0.00	1.00	1.00
Max Score	35.00	1.00	1.00	1.00	68.00	4.00	8.48	5.00	5.00
Missing Values	2	2	2	4	6	68	44	7	10

\*  $p < 0.05$ ; #  $p < 0.10$

**Appendix B. Confirmatory Factor Analysis Results for the Measurement Model of Short Warwick-Edinburgh Mental Well-being Scale**

Observed Variable – SWEMWBS	Mean	St. Deviation	Standardized Factor Loading	$\alpha$
I've been feeling optimistic	3.10	0.99	0.703	0.861
I've been feeling useful	3.02	0.98	0.709	
I've been feeling relaxed	2.92	0.94	0.685	
I've been dealing with problems well	3.25	0.97	0.744	
I've been thinking clearly	3.30	0.96	0.797	
I've been feeling close to other people	3.19	1.11	0.500	
I've been able to make up my own mind about things	3.57	0.97	0.689	