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ORIGINAL ARTICLE

Parenting Students and Indicators of Financial Stability, Health, and Academic Success: Findings from a Population-Based Sample of Public Urban University Students

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Abstract Parenting students constitute a significant portion of the college population, with 22% of undergraduate students nationwide managing the dual responsibilities of parenthood and education. Single-parenting students face disproportionate challenges to achieving academic success. This study examines the health, financial, and academic aspects of parenting students attending a large, urban public university, specifically comparing single parents to their married or cohabiting counterparts and non-parenting students in New York City. We collected data from 2104 participants, including 142 single parents and 119 married or cohabiting parents, through a cross-sectional survey. Using adjusted regression models, we evaluated the associations between parenting status and financial, health, and academic factors. Our findings reveal that, in comparison to non-parents, single parents are significantly more likely to carry debt (adjusted odds ratio [aOR] 1.81), rely on food assistance (aOR 5.03), and achieve slightly lower GPAs ($\beta - 0.11$). Single parents also work more hours (aOR 1.66) and have an increased likelihood of facing debt (aOR 2.66), housing difficulties (aOR 2.80), food insecurity (aOR 2.21), and lower GPAs ($\beta - 0.22$) compared to their married or cohabiting peers. The disaggregation of single and married or cohabiting parents reveals significant disparities, emphasizing the vulnerability of single-parenting students in higher education. Targeted interventions addressing issues like food security and housing are essential to support the academic success of single parents.

Keywords Student parents · Parenting students · Survey · Finances · Academics

Introduction

Public universities situated in urban areas constitute a significant segment of the American college student population and 22% of undergraduate college students nationwide are raising children while attending school [1, 2]. Most parenting students are women, with single mothers representing 43% of all parenting students [3]. Compared to students without children, parenting students are more likely to be people of color, to be older, to have lower incomes, and to hold more college debt [4, 5]. Degree completion for parenting students has positive benefits for students and

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their children. A college education provides substantially higher earnings and confers improved health outcomes, reduced poverty, and enhanced educational outcomes for children [5, 6]. Thus, prioritizing the persistence of parenting students to graduation is vital for advancing the well-being of students, their families, and society as a whole.

Parenting students, especially single-parenting students, face significant barriers to degree completion, with financial challenges often hampering academic pursuits [7]. Completing a college degree while also fulfilling parenting responsibilities, securing child care, and maintaining employment can be exceedingly difficult tasks to balance on one's own. Parenting students work 29 hours per week on average, and hours worked are associated with declines in degree attainment in this group [6, 7]. Despite working nearly full time, most single mothers are unable to contribute to college costs and simultaneously face significantly higher unmet financial need compared to non-parents and married parents [6]. Furthermore, the share of community colleges with on-campus child care declined sharply from 2004 to 2015 [8, 9]. Research has shown that parents who have access to campus child care demonstrate better persistence and have a greater likelihood of completing a degree than other parents without campus child care [10]. Given these challenges, just 28% of single mothers and 40% of married mothers earn a degree or certificate within 6 years, compared to 57% of women who are not parenting [10]. The COVID-19 pandemic has only exacerbated parenting students' challenges in fulfilling their multiple roles [11, 12].

Despite acknowledging the challenges faced by parenting college students, a notable gap persists in our understanding of the complex factors impacting parenting students' academic outcomes [13]. The limited evidence that does exist often considers parenting students as a homogenous group, noting, for instance, that they tend to achieve higher grade point averages (GPA) overall [3]. However, we posit that this success may not be uniform for all student parents and may in fact be related to a range of factors, including physical, mental, or financial health. To address this, our study describes the heterogeneity among the parenting student population, disaggregating single parenting students from partnered parenting students in our analysis. We examine the health, academic, and financial factors associated with student parenting status (single parents, married or cohabiting parents, and non-parents) among students attending a large urban public university in New York City. This deliberate disaggregation aims to unveil nuanced disparities and help to inform targeted support mechanisms to help institutions of higher education develop supportive interventions to promote the health and degree attainment of all types of parenting students.

Materials and Methods

Study Population and Survey Design

The City University of New York (CUNY) is the largest public university system in the USA. In the 2018–2019 academic year, the CUNY enrolled 275,000 students across 25 campuses in the five boroughs of New York City, offering certificate, associate, baccalaureate, or graduate degrees. CUNY students are a diverse group from a range of socioeconomic backgrounds. About 60% of undergraduate students are Pell Grant recipients (awarded to those with exceptional financial need) and 80% are students of color [14]. Twelve percent (12%) are married or have a domestic partner and 13% support their own children [15].

Healthy CUNY is a CUNY-wide initiative sponsored by the Chancellor's Office and the CUNY Graduate School of Public Health and Health Policy that works to reduce health-related barriers to academic success. A key activity of Healthy CUNY is to assess the health and essential needs among the student population by partnering with the CUNY Office of Institutional Research to disseminate periodic surveys to a population-representative sample of CUNY students. From October 2017 to January 2018, 7500 students, who were matched to the full student population on age, gender, race/ethnicity, year in school and college level (graduate, senior, or community college), and grade point average, were invited to complete a survey. We assessed 22 domains including socioeconomic characteristics, academic achievement, service utilization, health status, and health-related behaviors. Those who did not respond were contacted and offered to complete the survey by phone. Survey respondents received a $20 gift card and were entered into a raffle to win an iPad for their participation. Of those emailed, 2112 students completed the

survey (28% response rate) and 2104 indicated their parenting status and are included in this analysis. This study was approved by the City University of New York Institutional Review Board (Protocol #695,980). For the current study, we aimed to assess how various health, financial, and academic indicators differed based on parenting status.

Independent Variable

Our independent variable of interest, "parenting status," incorporated both parenting and relationship status and included three response categories: non-parent, single parent, or married/cohabiting parent. The parenting status variable was constructed from two distinct survey items: the first, "Are you a parent or guardian of any children?", offered response options "yes," "no," and "don't know/unsure." Students who responded "no" were included in the "non-parent" category, and students who responded "don't know/unsure" were excluded. Students who responded "yes" were then subcategorized as single or married based on their response to the second survey item "Are you…" with response options including "single," "married," "living as married," "separated," "divorced," "widowed," and "dating." Parents who indicated they were single, separated, divorced, widowed, or dating were collapsed into the "single parent" category while parents who indicated they were married or living as married were collapsed into the "married parent" category. We used married/cohabiting versus single parent as a proxy to represent parenting students who may have more support ("married/cohabiting") versus less support ("single") since, typically, single-parent households have lower income levels compared to two-parent households, even when making comparisons among mothers of similar age, educational attainment, racial background, and state of residence [16]. Due to the fact that 93% of non-parents reported being in the "single" category, we did not stratify by relationship status among this group.

Dependent Variables

Dependent variables of interest included academic outcomes (grade point average (GPA)), financial health (food assistance utilization, food security status, housing problems, debt, and number of hours per week working at a paid job), and mental health (anxiety and depression). Survey items were as follows: "What is your overall cumulative GPA at CUNY?" (continuous), "In the past 12 months, have you used any food assistance resources or services?" (yes/no), "In the past 12 months, have you had any housing problems?" (yes/no), "How much financial debt do you have? (none, less than $5000, $5000–$10,000, $10,000 to $15,000, $15,000–$20,000, more than $20,000). Response options were collapsed into yes/no categories for having debt versus not having debt. To assess the number of hours worked, respondents were first asked "Are you currently employed?" (yes/no). Those who answered "yes" were asked "On average, how many hours a week did you work in the past 12 months?" (1–19 hours per week/20–24 hours per week/35 or more hours per week) and those that answered "no" were coded as "0 hours per week."

Food security status was conducted using four questions established prior to the 2012 US Department of Agriculture's US Household Food Security Survey Module. These questions were chosen to maintain alignment with previous survey iterations: "In the last 12 months, how often have you: (1) Worried that you would run out of food before you could afford to buy more? (2) Cut or skipped a meal because you didn't have enough money to buy more?; (3) Been unable to eat balanced or nutritious meals because of lack of money; and (4) Gone hungry due to lack of access to food?" We categorized respondents as "food insecure" if they answered "sometimes" or "often" to any of the four questions, and "food secure" if they responded never or rarely to all four questions.

Anxiety and depression were assessed using the PHQ-4, a four-item Likert-type screening tool for anxiety and depressive symptoms [17]. It asks "Over the *last 2 weeks*, how often have you been bothered by the following problems? 1) 'Feeling nervous or anxious or on edge' 2) 'Not being able to stop or control worrying', 3) 'Feeling down, depressed, or hopeless' and 4) 'Little interest or pleasure in doing things.'" Response options included the following: "not at all," 0; "several days but less than one week," 1; "more than half the days," 2; "nearly every day," 3. Positive screening for anxiety was assigned to participants if the score of the two symptoms of anxiety was greater than or equal to three. Similarly, for the two core symptoms of depression, scores greater than or equal to three were assigned positive screening [18, 19].

Covariates

Covariates in the adjusted models included self-reported race/ethnicity (Hispanic/Latinx, non-Hispanic (NH) White, NH Black, and NH Asian, NH Multiracial/Other race), born in the USA (yes vs. no), age (continuous), gender (male, female, trans/other), and college level (undergraduate, graduate).

Analysis

The sample was weighted to reflect the CUNY student population based on the demographic criteria used to select the initial probability sample. We examined bivariate associations between parenting status and self-reported sociodemographic, academic, financial, and health indicators. Chi-square and Fisher's exact tests were used for categorical outcome variables and Wilcoxon rank sum tests for the continuous variables, age, and GPA, since both had skewed distributions. We present raw frequencies, weighted means, and weighted percentages. *P*-values presented are from the weighted analyses.

We performed crude and adjusted multivariable regressions to examine associations between student parenting status (non-parents vs. single parents vs. married parents) and eight distinct dependent variables: self-reported GPA (continuous), number of employment hours per week (categorical), debt (binary), housing problems (binary), food insecurity (binary), food assistance utilization (binary), anxiety (binary), and depression (binary). Adjusted models included race/ethnicity, US-born, age, sex, and college level as covariates. SAS 9.4 was used for all analyses. We ran linear regression models for continuous outcomes and logistic regression models for binary and categorical outcomes, respectively. We hypothesized that single parents would be significantly more likely than non-parents and married/cohabiting parents to report having lower GPA; greater food insecurity, more food assistance utilization, more housing problems, more debt, more hours worked; and greater anxiety and depression in the adjusted models.

Results

Table 1 shows the characteristics of the overall sample and parenting status. Of the 2104 students who indicated their parenting status in the survey, 261 (14.4%) reported being a parent, of whom 142 (54.4%) were single parents and 119 (45.6%) were married/cohabiting parents. The majority of respondents (85.6%) were non-parents. Compared to non-parents, both single and married/cohabiting parents were older on average (23.7 vs. 34.0 and 35.1 years old). A greater proportion of single parents was female compared to non-parents and married/cohabiting parents (82.7% vs. 55.8% and 66.6%). Additionally, a greater proportion of single parents identified as Hispanic compared to non-parents (43.0% vs. 32.8%) and as Black compared to both non-parents and married/cohabiting parents (37.1% vs. 18.8% and 22.0%). Married/cohabiting parents were more likely to be White compared to both single parents and non-parents (28.2% vs. 15.2% and 20.4%).

Married/cohabiting parents had a higher average GPA compared to non-parents and single parents (3.41 vs. 3.17 and 3.16), and a greater proportion of married/cohabiting parents took a leave of absence (LOA) in the past year, compared to non-parents and single parents (19.3% vs. 11.7% and 11.1%). There was no significant difference in the proportion of single parents taking a LOA compared to non-parents (11.1% vs. 11.7%).

A greater proportion of single parents (62.0%) and married/cohabiting parents (76.4%) reported living in their own house, room, or apartment compared to non-parents (24.0%), who were more likely to live with a parent, friend, or in a college dormitory. More single parents (17.5%) experienced housing problems in the previous year compared to non-parents (9.4%) and married/cohabiting parents (6.9%). Compared to non-parents, single parents were more likely to not have had enough money for rent (8.1% vs. 4.5%) or to have faced eviction over the previous 12 months (3.1% vs. 0.6%). Fewer single parents reported having no debt (18.1%) compared to non-parents (52.1%) and married/cohabiting parents (34.9%). Single parents were more likely to be food insecure (41.8%) compared to non-parents (31.3%) and married/cohabiting parents (25.4%), and single parents were also more likely to use food assistance (27.5%) than non-parents (5.2%) and married/cohabiting parents (13.8%).

Married/cohabiting parents were significantly less likely than non-parents to have anxiety (12.4% vs 20.5%). However, there were no significant differences in the prevalence of anxiety or depression between single parents and non-parents. Similarly, when evaluated using chi-square *p*-value statistics,

Table 1 Bivariate statistics comparing married/cohabiting parents, single/dating parents, and non-parents with sociodemographic, academic, financial, and health indicators ($n=2104$)

Characteristic[‡+]	Total (N, wt %)	Non-parents (n, wt %)	Single/dating parents (n, wt%)	Married/cohabitating parents (n, wt %)	P-value
Total	2104 (100)	1843 (85.6)	142 (7.7)	119 (6.7)	
Age (mean, SD)[§]	25.3 (7.5)	23.7 (5.2)	34.0 (11.7)	35.1 (10.0)	< 0.0001**
Gender°					< 0.0001**
Female	1294 (58.6)	1091 (55.8)	120 (82.7)	83 (66.6)	
Male	796 (40.7)	739 (43.5)	22 (17.3)	35 (32.7)	
Trans/Other	14 (0.7)	13 (0.7)	0 (0.0)	1 (0.74)	
Race/ethnicity					< 0.0001**
Hispanic/Latinx	680 (34.0)	573 (32.8)	62 (43.0)	45 (37.9)	
White, Non-Hispanic	403 (20.5)	350 (20.4)	20 (15.2)	33 (28.2)	
Black, Non-Hispanic	365 (20.4)	291 (18.8)	51 (37.1)	23 (22.0)	
Asian/Other/Multi, Non-Hispanic	647 (25.1)	621 (28.0)	9 (4.7)	17 (11.9)	
Born in USA					< 0.0001**
Yes	1301 (62.3)	1164 (63.9)	85 (59.9)	52 (44.2)	
No	798 (37.8)	675 (36.1)	56 (40.1)	67 (55.8)	
GPA (mean, SD)[§]	3.18 (0.59)	3.17 (0.58)	3.16 (0.63)	3.41 (0.54)	0.0001**
Level					0.0281**
Undergraduate	1729 (88.2)	1525 (88.6)	118 (89.9)	86 (80.9)	
Graduate	239 (11.8)	203 (11.4)	14 (10.1)	22 (19.2)	
Leave of absence					0.0271*
Yes	237 (12.2)	199 (11.7)	16 (11.1)	22 (19.3)	
No	1843 (87.8)	1624 (88.3)	123 (88.9)	96 (80.7)	
Currently live					< 0.0001**
No address/shelter/daily rental	89 (4.5)	75 (4.3)	9 (6.5)	5 (4.5)	
Parent/friend/dorm	1324 (62.1)	1273 (69.2)	36 (24.2)	15 (13.4)	
Their own place	587 (30.4)	414 (24.0)	84 (62.0)	89 (76.4)	
Other	65 (3.1)	49 (2.6)	9 (7.2)	7 (5.7)	
Any housing problems[†]	198 (9.9)	167 (9.4)	24 (17.5)	7 (6.9)	0.0026**
Rent increase made it hard to pay rent°	72 (3.6)	62 (3.4)	6 (4.7)	4 (3.9)	0.0306*
Not enough $ for rent°	93 (4.7)	78 (4.5)	12 (8.1)	3 (2.7)	0.0363*
Eviction°	15 (0.8)	11 (0.6)	4 (3.1)	0 (0.0)	0.0249*
Req. court appearance°	18 (1.0)	12 (0.7)	4 (2.7)	2 (2.1)	0.0162*
Other housing problem°	69 (3.5)	57 (3.2)	10 (7.3)	2 (2.0)	0.0391*
Debt					< 0.0001**
Yes	945 (51.6)	772 (47.9)	105 (82.0)	68 (65.1)	
No	972 (48.5)	910 (52.1)	22 (18.1)	40 (34.9)	
Food insecurity					0.0094**
Yes	621 (31.7)	541 (31.3)	54 (41.8)	26 (25.4)	
No	1353 (68.3)	1200 (68.7)	74 (58.2)	79 (74.7)	
Hunger interfered with school°					0.0023**
None	1547 (79.0)	1353 (78.3)	99 (77.7)	95 (89.0)	
A little bit, somewhat	355 (17.1)	327 (17.9)	19 (14.4)	9 (10.0)	
Moderately, a lot	73 (3.9)	62 (3.8)	10 (7.9)	1 (1.0)	

Table 1 (continued)

Characteristic[‡+]	Total (*N*, wt %)	Non-parents (*n*, wt %)	Single/dating parents (*n*, wt%)	Married/cohabitating parents (*n*, wt %)	*P*-value
Used food assistance					< 0.0001**
Yes	139 (7.4)	88 (5.2)	37 (27.5)	14 (13.8)	
No	1833 (92.6)	1651 (94.8)	91 (72.5)	91 (86.2)	
PHQ-4					
Anxiety	404 (19.6)	369 (20.5)	22 (15.7)	13 (12.4)	0.0368*
Depression	334 (16.0)	305 (16.7)	16 (12.1)	13 (11.8)	0.1327
Anxiety or depression	506 (24.6)	461 (25.6)	25 (18.4)	20 (18.7)	0.0418*
Needed MH treatment					0.0380*
Yes	491 (25.9)	444 (26.9)	28 (21.4)	19 (17.7)	
No	1375 (74.2)	1194 (73.1)	98 (78.6)	83 (82.3)	
MH interfered with school					0.0062**
Not at all	1262 (64.6)	1086 (63.0)	93 (71.3)	83 (76.9)	
A little bit, somewhat	508 (24.2)	461 (25.0)	28 (21.3)	19 (17.1)	
Moderately, a lot	236 (11.3)	218 (12.0)	11 (7.4)	7 (6.0)	
Overall Health					0.0805
Excellent, very good	1369 (65.8)	1214 (66.8)	85 (62.0)	70 (57.5)	
Good	578 (27.0)	491 (26.0)	45 (29.8)	42 (36.4)	
Fair, poor	156 (7.2)	137 (7.2)	12 (8.2)	7 (6.1)	
Health insurance					0.9543
Yes	1939 (92.3)	1698 (92.2)	131 (92.8)	110 (92.6)	
No	150 (7.7)	132 (7.8)	10 (7.2)	8 (7.4)	
Health problems interfered with school					0.0505
Not at all	1560 (74.4)	1379 (75.1)	91 (65.8)	90 (75.7)	
A little bit, somewhat	402 (18.9)	349 (18.7)	34 (23.0)	19 (16.4)	
Moderately, a lot	136 (6.7)	110 (6.2)	16 (11.2)	10 (7.9)	
Main source of health care[†]					
Out-patient clinic at hospital	292 (23.1)	261 (18.0)	16 (14.0)	15 (13.6)	0.2591
Neighborhood/community Health center	406 (22.8)	362 (23.5)	28 (22.8)	16 (15.3)	0.1137
Private doctor/physician	1079 (60.8)	926 (59.7)	76 (61.2)	77 (73.3)	0.0107*
Mobile health van°	3 (0.14)	3 (0.17)	0 (0.0)	0 (0.0)	1.0000
Urgent care	134 (8.0)	116 (8.0)	12 (10.3)	6 (6.1)	0.4567
Emergency room°	72 (4.2)	63 (4.3)	4 (2.8)	5 (5.1)	0.8593
On-campus wellness center°	33 (1.9)	30 (2.0)	1 (1.2)	2 (1.7)	0.8475
Military/VA clinic°	19 (1.2)	11 (0.8)	3 (2.5)	5 (5.0)	0.0013**
Other location°	34 (1.9)	31 (2.0)	0 (0.0)	3 (2.8)	0.1892
Regular source of care					0.0864
Yes	1754 (85.2)	1528 (84.6)	121 (86.8)	105 (91.4)	
No	295 (14.8)	268 (15.4)	17 (13.2)	10 (8.7)	
Employed					0.5422
Yes	1260 (61.4)	1109 (61.7)	84 (62.2)	67 (57.0)	
No	813 (38.6)	710 (38.3)	54 (37.8)	49 (43.0)	
# Hours worked					< 0.0001**

Table 1 (continued)

Characteristic‡+	Total (*N*, wt %)	Non-parents (*n*, wt %)	Single/dating parents (*n*, wt%)	Married/cohabitating parents (*n*, wt %)	*P*-value
0	813 (38.6)	710 (38.3)	54 (37.8)	49 (43.3)	
1–19	375 (16.8)	355 (18.2)	7 (5.5)	13 (11.7)	
20–34	421 (20.7)	379 (21.3)	24 (18.1)	19 (15.7)	
35 +	462 (23.9)	374 (22.2)	53 (38.6)	35 (29.3)	

‡Chi-square tests used for comparison unless otherwise noted

°Fisher's exact test used for comparison

§Wilcoxon rank sum test used for comparison

+Categorical variables are measured in the "past 12 months" unless otherwise noted

†Response categories are not mutually exclusive

*$p < 0.05$; **$p < 0.01$

there were no significant distinctions in overall health, access to health insurance, health problems interfering in school, employment status, or the presence of a regular healthcare provider across groups.

Adjusted Models

Academics

In the adjusted estimates (Table 2), single parents had significantly lower GPAs than both non-parents ($\beta - 0.11$,95% CI $- 0.22, - 0.006$) and married/cohabiting parents ($\beta - 0.22$, 95% CI $- 0.36, - 0.08$).

Finances

Married/cohabiting parents had 40% lower odds of working more hours per week than non-parents (aOR 0.40, 95% CI 0.27, 0.59) while single parents had 66% greater odds of working more hours per week than married/cohabiting parents (aOR 1.66, 95% CI 1.03, 2.70). Single parents were also 81% more likely to have debt than non-parents (aOR 1.81, 95% CI 1.09, 3.00) and almost three times as likely to have debt than married/cohabiting parents (aOR 2.66, 95% CI 1.42, 5.00).

Basic Needs Security

There was no significant difference in the odds of having housing problems between single parents and non-parents, but the odds of having housing problems were almost three times greater among single parents compared to married/cohabiting parents (aOR 2.80, 95% CI 1.19, 6.57). Single parents were also five times as likely to use food assistance compared to non-parents (aOR 5.03, 95% CI 2.94, 8.59) while married/cohabiting parents were more than twice as likely to use food assistance compared to non-parents (aOR 2.26, 95% CI 1.13, 4.51). Compared to non-parents, single parents did not have statistically different odds of being food insecure. However, single parents had twice the odds of being food insecure than married/cohabiting parents (aOR 2.21, 95% CI 1.24, 3.94).

Mental Health

There were no significant differences in anxiety between single parents and non-parents or married/cohabiting parents in the adjusted model. However, married/cohabiting parents were significantly less likely to have anxiety compared to non-parents (aOR 0.47, 95% CI 0.25, 0.87). There were no significant differences observed between groups for depression.

Discussion

This study sheds light on the challenges faced by parenting students in a large urban college system, both on- and off-campus. Additionally, it explores how the combination of parenting status and relationship status reveals an important heterogeneity among parenting students with respect to factors that are known to impact student success. In doing so, it offers a more

Table 2 Regression analyses examining the crude and adjusted association between parenting status and academic and financial indicators

Model	Variables	Crude estimate (95% CI)	Adjusted estimate[1] (95% CI)
Linear regression	GPA		
	Single parents vs. non-parents	−0.002 (−0.10, 0.09)	**−0.11 (−0.22, −0.006)***
	Married parents vs. non-parents	**0.25 (0.14, 0.35)****	0.11 (−0.01, 0.22)
	Single parents vs. married parents	**−0.25 (−0.38, −0.11)****	**−0.22 (−0.36, −0.08)****
Multinomial regression	Hours worked		
	Single parents vs. non-parents	**1.59 (1.16, 2.17)***	**0.66 (0.46, 0.97)***
	Married parents vs. non-parents	1.03 (0.74, 1.43)	**0.40 (0.27, 0.59)****
	Single parents vs. married parents	1.54 (0.10, 2.38)	**1.66 (1.03, 2.70)***
Logistic regression	Debt		
	Single parents vs. non-parents	**4.95 (3.20, 7.66)**	**1.81 (1.09, 3.00)**
	Married parents vs. non-parents	**2.03 (1.39, 2.96)**	0.68 (0.42, 1.09)
	Single parents vs. married parents	**2.44 (1.39, 4.27)**	**2.66 (1.42, 5.00)**
Logistic regression	Housing problems		
	Single parents vs. non-parents	**2.03 (1.31, 3.16)****	0.99 (0.58, 1.69)
	Married parents vs. non-parents	0.72 (0.36, 1.41)	**0.35 (0.16, 0.78)***
	Single parents vs. married parents	**2.84 (1.30, 6.19)****	**2.80 (1.19, 6.57)***
Logistic regression	Food insecurity		
	Single parents vs. non-parents	**1.58 (1.12, 2.23)****	1.20 (0.79, 1.81)
	Married parents vs. non-parents	0.75 (0.49, 1.13)	**0.54 (0.32, 0.90)***
	Single parents vs. married parents	**2.12 (1.26, 3.57)****	**2.21 (1.24, 3.94)****
Logistic regression	Food assistance utilization		
	Single parents vs. non-parents	**6.90 (4.53, 10.53)****	**5.03 (2.94, 8.59)****
	Married parents vs. non-parents	**2.90 (1.67, 5.05)****	**2.26 (1.13, 4.51)***
	Single parents vs. married parents	**2.38 (1.27, 4.45)****	**2.23 (1.11, 4.46)***
Logistic regression	Anxiety		
	Single parents vs. non-parents	0.72 (0.46, 1.14)	0.62 (0.37, 1.05)
	Married parents vs. non-parents	**0.55 (0.32, 0.94)***	**0.47 (0.25, 0.87)***
	Single parents vs. married parents	1.32 (0.67, 2.62)	1.33 (0.63, 2.79)
Logistic regression	Depression		
	Single parents vs. non-parents	0.69 (0.42, 1.14)	0.73 (0.41, 1.31)
	Married parents vs. non-parents	0.67 (0.38, 1.15)	0.89 (0.48, 1.63)
	Single parents vs. married parents	1.03 (0.50, 2.14)	0.83 (0.39, 1.76)

[1]Adjusted for race/ethnicity, born in the USA, age, gender, and college level (undergraduate vs. graduate)

*$p < 0.05$; **$p < 0.01$

Values in bold indicate statistical significance at the 0.05 level

nuanced understanding of this multifaceted demographic and emphasizes the need to disaggregate analyses by relationship status or employ alternative indicators to capture aspects of financial stability and social support.

Notably, previous literature has shown that parenting students achieve higher GPAs than their non-parenting peers. While our study broadly corroborates this trend within the overarching category of parents, a more granular perspective reveals a more nuanced narrative. When stratified by relationship status, our data reveal a noteworthy divergence. Specifically, married or cohabiting parents exhibited a significantly higher mean GPA compared to both single parents and non-parents. Additionally, single parents and non-parents exhibited comparably similar mean

GPAs. However, it is necessary to contextualize the equivalence within the framework of our adjusted analysis, which accounted for covariates including race/ethnicity, age, gender, nativity, and college level. In this adjusted model, single parents had a significantly lower mean GPA compared to both non-parents and married or cohabiting parents. This aligns with existing literature, affirming that single parents face unique challenges, which in turn, exert a discernable impact on their academic performance [19–21]. It is important to emphasize that the failure to stratify based on relationship status can inadvertently obscure an underlying relationship between parenting status and academic performance among some parenting students. Such an oversight risks diluting the substantial impact that the circumstances surrounding single parenting have on the educational outcomes among parenting students. Although not measured in this study, some latent factors that may account for these circumstances, as noted in other research, may include lack of social support or stress derived from perceived stigma [22, 23].

Our findings reveal notable disparities related to debt and working hours among different parenting and relationship status groups. Despite parenting students, on the whole, working fewer hours per week than non-parents, single parents faced a significantly higher likelihood of working more hours per week than their married counterparts. Additionally, single parents were markedly more likely to have debt compared to both married parents and non-parents. These findings underscore the financial strain experienced by single parents, emphasizing the need for targeted interventions to address their disproportionate burden of financial challenges.

In light of these findings, it becomes evident that educational institutions must recognize that single parents are a vulnerable group who may require additional financial support for their academic potential to be realized. Social and structural barriers, like food and housing insecurity, were more prevalent in the single-parenting student population, and such experiences can negatively impact health and educational outcomes [24]. Despite being five times more likely to use food assistance compared to their married or cohabiting and non-parenting counterparts, a notable discrepancy exists between the need for assistance and actual utilization among this demographic; despite CUNY providing on-campus food assistance resources, just 28% of single-parenting students report receiving any food assistance while 42% report facing food insecurity. This underscores the pressing need for more robust systems that connect all eligible parenting students to services and public benefits such as the Supplemental Nutrition Assistance Program (SNAP) and SNAP Women Infants and Children (WIC) as well as efforts to actively promote and destigmatize the use of food pantry resources and discount cafeteria vouchers. Additionally, ensuring that single-parenting students facing housing problems are connected to resources for managing rent payment, eviction, or housing court issues may help to address housing instability. Offering targeted scholarships to parenting students with less social support and financial stability, perhaps based on family size and income, may help alleviate tuition costs. Many colleges, including CUNY, have recognized this opportunity for intervention [25–27]. In addition to offering students resources such as on-campus food pantries, SNAP enrollment support, and emergency grants, some CUNY campuses also provide direct navigation to orient students to on-and off-campus services, as well as peer-mentoring to actively destigmatize resource utilization [28].

Interestingly, our study did not identify significant differences in anxiety and depression levels among the groups. While the existing literature often associates parenting stress with increased mental health challenges, the absence of significant disparities in our findings prompts further consideration. It is conceivable that the shared experiences of academic pursuits among all students, regardless of parenting or relationship status, contribute to a commonality in observed mental health outcomes. The university environment, with its inherent stressors and demands, may potentially overshadow the specific stressors related to parenting, or worse, parenting students with worse mental health may have selected out of this sample via college dropout. Alternatively, the presence of supportive services and interventions within the academic setting may help to mitigate mental health disparities among these groups. Furthermore, our results do not diminish the significance of recognizing and addressing mental health concerns among college students. The absence of significant differences underscores the universal need for mental health support in a university setting, emphasizing the importance of accessible resources for all students.

Future research could delve deeper into the nuanced factors contributing to mental health outcomes among diverse student populations to inform targeted interventions and enhance overall student well-being.

Interestingly, while a greater proportion of married or cohabiting parents took a LOA compared to non-parents, there was no significant difference in the proportion of single parents taking a LOA compared to non-parents. This may be due to the lack of support systems that single parents have to take time off and the pressure they feel to get through school [14]. Leaves of absence can be a supportive option that aids students in managing their families, but more work is needed to understand how institutions can maximize the use of this option in a way that meets parenting students' needs and facilitates their ability to persist.

Limitations

This study has some methodological limitations. As with all self-reported data, survey questions have the potential to be misinterpreted or prone to recall bias. This may be especially relevant for mental health variables, as a growing body of literature suggests inaccuracies in recalling previous affective experiences [29]. Furthermore, while we intended to characterize the amount of support that students have by their relationship status, we know that single-parenting students and married/cohabiting parenting students are not homogenous groups and have various levels of support in their lives. Utilizing marital status as a proxy for support assumes that having a partner denotes additional income and child care support, and we recognize that this is not universal. The survey question used to assess debt did not differentiate between the types of debt students held. Finally, although our results are representative among CUNY students, they may not be generalizable to private schools or schools located outside of urban areas.

Conclusion

The results of this study suggest that parenting status is associated with several factors that may impact academic performance and overall well-being among college students. Our findings underscore the importance of future studies to disaggregate parenting students based on social support and financial stability. The results highlight the unique challenges faced by single-parenting students in an urban setting and the importance of addressing them to support their academic success. The exceptional needs of single-parenting students warrant financial, academic, health, and social supports such as affordable, quality child care; housing; tuition coverage; and increased financial aid. Such supports have the potential to influence the economic security for students today and for future generations.

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Data Availability The data generated and analyzed during this study are not publicly available due to the potential of breaching confidentiality.

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