

The Burden of Dual Roles: Gendered Impacts of Caregiving and Employment on Academic Engagement in Higher Education

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Abstract

This study examined how caregiving and employment affected academic engagement among Ghanaian university students. Drawing on Role Congruity Theory and the Conservation of Resources framework, it employed a cross-sectional survey of 316 undergraduates at Bolgatanga Technical University. Logistic regression was used to analyse how caregiving and work contribute to academic disruption, defined as missed classes, reduced study time and compromised performance. Results showed that caregiving and employment were strong predictors of disruption: caregivers were over 34 times, and employed or dual-role students over 75 times, more likely to miss classes than peers without such roles. Although gender–role interactions were not statistically significant, predicted probabilities revealed that female students faced greater disruption (88%) than males (69%). Marital status also heightened the risk of disruption, underscoring the compounding effect of family obligations. The study concluded that caregiving and employment are central determinants of academic success and calls for gender-responsive institutional policies to reduce inequities.

Keywords: Academic disruption; gender disparities; student caregivers; student employment; student workers; class absenteeism.

Introduction

Higher education is widely recognised as a critical pathway to social mobility, professional advancement and economic development. Universities do not only provide formal qualifications but also nurture intellectual capital that is essential for national competitiveness in a global knowledge economy. For students, consistent academic engagement is the cornerstone of successful progression and eventual graduation (Arthur et al., 2025), yet, for a growing segment of the student population, academic engagement is shaped by external role demands that often compete for scarce time and emotional resources. This is especially true for students who shoulder caregiving responsibilities or engage in paid employment while pursuing their studies. When these dual burdens intersect with gendered expectations and labour market realities, the outcome can be profound academic disruption, manifesting in missed classes, reduced study time and compromised performance (Kroupova et al., 2024; Ndungu et al., 2025).

The dual burden of caregiving and employment is not experienced equally across genders. A large body of research confirms that women disproportionately bear the weight of unpaid domestic and care work, a trend that persists across all regions of the world (United Nations, 2023; UN Women, 2024). In Ghana, time-use studies reveal that women spend significantly more hours per day on unpaid care and household labour than men, which results in what has been termed “time poverty” (Carmichael et al., 2024, 2025). This imbalance has far-reaching consequences for academic engagement as female students



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often juggle institutional expectations with gendered household obligations (Thebaud et al., 2024). Studies conducted in Ghana and South Africa confirm that female student carers are more likely to report missing classes, struggling with coursework and contemplating withdrawal than male students (Arthur et al., 2025; Shange & Mthembu, 2025). Additionally, meta-analyses indicate that caregiver burden is consistently greater for women, both in terms of intensity and psychological impact (Duangjina et al., 2025; Engwicht et al., 2025). These differences show the importance of gender as a factor that affects the link between role burden and academic disruption.

While global scholarly works on student carers and working students have expanded considerably in recent years (e.g., Ndungu et al., 2025; Pierce et al., 2025; Runacres et al., 2024), evidence from sub-Saharan Africa (SSA) remains thin. Most of what is known derives from high-income contexts, where institutional safety nets, flexible delivery modes and comprehensive childcare policies offer some mitigation (Navarro-Cruz et al., 2023). In contrast, African students navigate resource-constrained institutions, limited social protection and fragile labour markets. In Ghana, studies have begun to document the lived realities of student-mothers (Amos et al., 2021) and the trade-offs of caring-work-study balance (Tetteh & Attiogbe, 2019), but systematic quantitative analyses remain rare. The present study addresses this gap by examining how caregiving and employment responsibilities intersect with gender to predict academic engagement, operationalised through class attendance and disruption. By focusing on a technical university in northern Ghana, the research also contributes contextually grounded evidence from a region often overlooked in higher education discourse.

Against this backdrop, the present study aims to investigate the gendered impacts of caregiving and employment on academic engagement in higher education. Specifically, it addresses the following questions:

1. To what extent does caregiving responsibility predict academic disruption (missed classes) and does this relationship differ by gender?
2. How does employment burden influence academic engagement among students, and what role does gender play in moderating this effect?

By answering these questions, the study contributes to the literature in three main ways: (1) it integrates caregiving and employment burdens into a single analytical framework, allowing for the examination of dual roles rather than isolated responsibilities; (2) it situates these issues within a Ghanaian context, thereby extending the geography of knowledge on student carers and workers beyond high-income settings and; (3) it foregrounds gender as a critical axis of inequality, aligning the findings with global calls for gender-responsive higher education policies (United Nations, 2023).

Literature Review

Caregiving responsibilities are an increasingly recognised yet underexplored dimension of student life in higher education. By definition, student carers are individuals who provide regular, unpaid care to children, siblings, elderly relatives or persons with disabilities while pursuing their studies (Amos et al., 2021; Ndungu et al., 2025; Pierce et al., 2025). A growing body of evidence indicates that caregiving disrupts academic trajectories by reducing study time, limiting social integration and increasing the risk of attrition (Runacres et al., 2024). In high-income contexts, studies have documented the prevalence and experiences of student carers, with a national survey in Norway finding that 5.5% of students aged 18-25 reported caregiving responsibilities (Haugland et al., 2020). Nevertheless, even in these situations, institutional acknowledgment and assistance for student caregivers continue to be inconsistent as numerous students are hesitant to reveal their status due to stigma or fear of discrimination (Rawlinson, 2026).

In SSA, caregiving is exacerbated by socio-cultural expectations regarding extended family responsibilities. Studies from Ghana and Nigeria underscore the significant challenges faced by student caregivers, particularly women who care for children or elderly relatives in the absence of formal social protection systems (Agyemang-Duah et al., 2024; Akpan-Idiok et al., 2020). A systematic review by Kisangala et al. (2024) similarly found that informal caregiving across SSA was associated with adverse mental health outcomes, financial strain, income loss and missed educational opportunities. Evidence from other settings points to comparable consequences. A scoping review of young carers in low- and middle-income countries identified educational disruption, early employment, socio-cultural pressures, and adverse mental and emotional outcomes as recurring consequences of caregiving (Raji et al., 2025). Among university students in the United States, Armstrong-Carter et al. (2022) found that greater caregiving intensity was associated with poorer academic performance, while students caring for chronically ill or older relatives also reported higher levels of anxiety and depression. Similarly, a United Kingdom study found that 81%

of surveyed student carers reported that caregiving had affected their course performance, 68% struggled to meet assessment deadlines and 77% reported adverse effects on their mental health and well-being (James et al., 2024). These findings underscore the necessity of contextualising caregiving in higher education within broader regional realities, where the lack of institutional childcare, rigid academic schedules and household poverty intensify the challenges faced by students.

In addition to caregiving, student employment has emerged as a structural characteristic of higher education worldwide. Rising tuition fees and living costs have compelled students to engage in part-time or even full-time employment, often during term time. The Higher Education Policy Institute's (HEPI) 2025 Student Academic Experience Survey reported that more than two thirds of students in the United Kingdom now work during term time, with many averaging 15–20 hours per week (Neves et al., 2025). While global trends are well documented, the situation is acute in SSA, where public funding for higher education is limited, student financial aid systems are fragmented and labour markets are largely informal (International Labour Organization [ILO], 2025). Ghanaian students, like their counterparts across the region, frequently rely on term-time jobs to support both academic and household needs (Tetteh & Attiogbe, 2019). Meta-analyses demonstrate a dose–response relationship between hours worked and academic outcomes, with significant negative effects emerging when students exceed 20 hours per week (Kroupova et al., 2024). Lesner et al. (2022) corroborated these findings, showing that term-time employment reduced test scores and increased risky behaviours among adolescents transitioning into higher education. Employment not only diverts time from study but also imposes psychological and physical fatigue that undermines learning effectiveness (Creed et al., 2023; Samaratunga & Kamardeen, 2025). For many, work is not optional but a financial necessity which makes it a structural feature of student life rather than a discretionary activity.

However, the relationship between work and study is not always linear. Creed et al. (2023) identified boundary management strategies that shape whether employment results in negative outcomes. Students who segment work and study roles report less stress and better academic performance than those with integrated or blurred boundaries (Eastgate et al., 2023; Van Steenbergen et al., 2018). Similarly, Samaratunga and Kamardeen (2025) found that the negative effects of employment on academic engagement were moderated by institutional support such as flexible scheduling and recognition of student work status. These findings suggest that employment by itself is not inherently detrimental; rather, the conditions under which students work and the institutional environments they inhabit determine outcomes.

In SSA, the dynamics are distinct such that informal and low-wage labour markets dominate, and students often work not only to cover tuition but also to support entire households (ILO, 2025). Tetteh and Attiogbe (2019) documented that Ghanaian students who worked during study frequently reported missing lectures, delayed assignment submissions and emotional exhaustion. Unlike in high-income contexts, where part-time employment is supplemental, in Ghana, it is frequently a necessity. This structural difference reinforces the need for locally grounded analyses of work–study balance.

Gender is a critical determinant in how caregiving and employment burdens are experienced. Globally, women perform three times as much unpaid care work as men (United Nations, 2023; UN Women, 2024). In Ghana and across SSA, time-use studies confirm that female students disproportionately bear the responsibility of childcare, household labour and elder care alongside academic responsibilities (Carmichael et al., 2024, 2025). This time poverty leaves women with fewer discretionary hours for study and rest, which directly affects their academic engagement.

Duangjina et al. (2025) demonstrated through a meta-analysis that caregiver burden is consistently higher among women, both in intensity and emotional impact. Engwicht et al. (2025) found that women reported higher mental health strain from caregiving during the COVID-19 pandemic, which further evidenced gendered vulnerabilities. Thebaud et al. (2024) emphasised that these burdens are reinforced by institutional cultures that implicitly expect women to manage caregiving without additional support, creating inequities in academic outcomes. Ghanaian studies of student-mothers reinforce this reality: Amos et al. (2021) showed that student-mothers often face inflexible academic schedules, inadequate childcare and financial strain, all of which intensify dropout risk.

Academic engagement is a multifaceted construct that includes vigour, commitment and immersion in learning activities (Schaufeli et al., 2002). Validated instruments like the Utrecht Work Engagement Scale for Students (UWES-S) have exhibited reliability across various cultural contexts, including South Africa (Brand et al., 2025) and East Asia (Chi et al., 2023). Arthur et al. (2025) and Effah and Nkwantabisa (2022) discovered that elevated engagement forecasts enhanced performance and persistence within undergraduate programs in Ghana.

Attendance is a prominent and quantifiable measure of engagement. Evans and Acosta (2023) conducted a cross-country study in low- and middle-income nations, revealing that absenteeism directly detracts from learning outcomes, frequently more significantly than resource availability. Ampofo et al. (2022) validated this mechanism in Ghanaian junior high schools, demonstrating that truancy significantly forecasted subpar academic performance. Likewise, Salah and Saxena (2025) demonstrated that extensive social disruptions, such as violent conflict, significantly influenced educational outcomes in SSA. In higher education, absenteeism due to caregiving and employment obligations is a significant mechanism by which role strain manifests as academic disruption. The consequences may also extend beyond the class initially missed, as students may fall behind their peers in accessing course content, classroom interactions and guidance on ongoing academic tasks. Where caregiving or employment responsibilities persist, the same circumstances that contributed to the initial absence may also constrain the time available to catch up on missed work, while additional absences may compound the academic backlog and further intensify the disruption.

The challenges of fulfilling dual roles can be elucidated through established theoretical frameworks. Role Congruity Theory (RCT) posits that individuals are limited by culturally established expectations of gender-roles, with women facing repercussions when they diverge from caregiving duties to pursue academic or professional aspirations (Eagly & Karau, 2002). This theory explains the cultural resistance and institutional invisibility frequently encountered by female student caregivers. The Conservation of Resources (COR) theory (Hobfoll et al., 2018) supports this view by proposing that stress and disengagement happen when the demands on a person are greater than the resources they possess. Students who concurrently fulfil caregiving and employment responsibilities are prone to resource depletion, resulting in disengagement from academic endeavours. Collectively, these frameworks establish a solid basis for hypothesising that caregiving and employment responsibilities forecast academic disruption, influenced by gender, resource allocation and cultural scripts. In the context of Ghana, where extended family responsibilities and insufficient institutional support intersect, these theories offer a significant framework for comprehending the causes of academic disruption.

International policy discussions are starting to recognise how important it is to help students who have dual roles. Initiatives such as the U.S. Department of Education's Child Care Access Means Parents in School (CCAMPIS) programme provide campus-based childcare services for low-income parenting students which are associated with higher persistence and degree completion rates (U.S. Department of Education, 2024). In the United Kingdom, the HEPI and Advance HE (Neves et al., 2025) have highlighted the growing prevalence of working students, calling for greater institutional flexibility. However, such policies are scarce in SSA. UN Women (2024) has called for greater recognition of unpaid care in education systems across Africa, while the Organisation for Economic Co-operation and Development (OECD, 2025) provides comparative statistics highlighting the lag in the region.

Within Ghana, studies consistently report the absence of systematic institutional support for student carers and working students (Amos et al., 2021; Tetteh & Attiogbe, 2019). This institutional gap leaves students to rely on personal resilience or informal networks, often at great cost to their academic engagement. Expanding support structures through flexible scheduling, recognition of caregiving status, establishing advice and referral systems, and robust data collection tools remains a critical challenge for most institutions. For policymakers, a critical challenge is targeted financial support, nationally recognised categorisation status for student carers and regulatory requirements mandating institutions to accommodate such students.

Methods and Materials

This study adopted a quantitative cross-sectional design, employing primary survey data to examine how caregiving and employment responsibilities shape academic engagement, with attention to gender-based disparities. The choice of a cross-sectional design is justified by the study's objective to delineate variances in academic participation outcomes at a single point in time among students with distinct caregiving and employment experiences (Bryman, 2016; Creswell & Creswell, 2017).

The cross-sectional method facilitates the incorporation of interaction terms in statistical modelling, which is deemed significant in this study's examination of how the intersection of gender and employment burden influences educational outcomes (Hosmer et al., 2013). The chosen design offers a suitable and broadly endorsed framework for examining role conflict in academic contexts, informed by theoretical principles and sophisticated statistical modelling (Saunders et al., 2019).

The research was executed at Bolgatanga Technical University in the Upper East Region of Ghana, an establishment that accommodates a heterogeneous student population spanning multiple academic fields. The university offers a conducive

environment for examining the nexus of caregiving, employment obligations and academic involvement, considering the socio-economic challenges encountered by students in the region.

The research involved a non-interventional, minimal-risk questionnaire survey of adult university students. Participation was voluntary, and respondents were informed of the purpose of the study before participating. No personally identifying information was used in the analysis or reporting, and responses were treated confidentially and reported only in aggregate form. The study was conducted in accordance with the ethical principles applicable to voluntary participation, informed consent, confidentiality and protection of participants in social science research.

The study's target population consisted of all full-time undergraduate students enrolled in diploma and degree programs during the 2022/2023 academic year. To ensure that all of the important demographic subgroups were well represented, a stratified random sampling method was used. Stratification was essential due to the study's focus on exploring gender-based disparities and caregiving/employment roles, which often exhibit considerable variation across faculties and academic cohorts (Lohr, 2022).

The minimum sample size for this study was calculated using Yamane's (1967) simplified formula for a finite population. With a student population of 2,760 and a desired margin of error (e) of $\pm 5.3\%$, the calculation was as follows:

$$n = \frac{N}{1 + N(e^2)} = \frac{2760}{1 + 2760 \times (0.052^2)} \cong 326$$

The variables used in this study were derived from a structured student survey that collected data on demographic characteristics, caregiving and employment responsibilities, and academic participation. The operationalisation of variables followed principles of construct validity, ensuring that each variable meaningfully represented its underlying concept while also being statistically suitable for inclusion in multivariate models (DeVellis & Thorpe, 2021).

The primary outcome of interest in this study was academic disruption, operationalised through two binary indicators: missed class due to caregiving responsibilities and missed class due to employment responsibilities. If the respondent said they missed class for that reason, each variable was given a code of 1. If not, it was given a code of 0. This binary coding structure is appropriate for logistic regression analysis and aligns with methodological standards in prior educational research examining analogous academic engagement outcomes (Agresti, 2018; Hosmer et al., 2013). To maintain consistency and reliability in the analysis, cases with absent values on either outcome variable were eliminated via listwise deletion (Allison, 2001; Graham, 2009).

The independent variables incorporated in the analysis were chosen based on theoretical and empirical factors pertaining to gendered labour dynamics and student role strain. Gender was categorised, with 0 indicating female, 1 indicating male and 2 indicating individuals who opted not to disclose their gender identity (Eagly & Karau, 2002; Thebaud et al., 2024). The primary caregiver role identified students who self-reported as the main caregiver in their household, coded as 1 for "Yes" and 0 for "No". Perceived caregiving burden measured whether students thought it was hard to balance their academic work with their caregiving duties. This was also coded as 1 for "Yes" and 0 for "No". Employment status was a binary variable indicating whether a student held any job (1 = "Yes", 0 = "No"), while job burden perception assessed the difficulty students faced in balancing work and school, similarly coded.

The model incorporated two control variables (marital status and age) to mitigate potential confounding factors affecting the relationship between role burdens and academic disruption. Marital status was classified as a binary variable, with 1 indicating married students and 0 indicating otherwise, based on the premise that marital commitments may exacerbate caregiving responsibilities and affect the time dedicated to academic tasks (de Brey et al., 2019). Marital status was modelled separately from caregiving responsibility; therefore, students who were not married but had caregiving responsibilities were still classified according to their caregiving role and were represented independently of marital status in the analysis. Age was transformed into categorical dummy variables, maintaining the original age ranges (18–24, 25–34, 35–44) to investigate whether disparities in academic engagement could be elucidated by differences in age-related life stages. A moderation variable (Gender $\times$ Caregiver Role Interaction) was established to evaluate whether the impact of caregiving burden on academic disruption differed by gender. This interaction term was derived from the RCT (Eagly & Karau, 2002), which posits

that gender-specific social expectations influence the internalisation and management of caregiving responsibilities in institutional settings, potentially leading to varying academic outcomes for male and female students.

Logistic regression is widely used in educational and social science research when outcome variables are categorical, and the goal is to estimate odds ratios of occurrence (Hosmer et al., 2013). In contrast to linear regression which assumes normally distributed residuals and homoscedasticity, logistic regression models the log odds of the binary outcome and relaxes the assumption of linearity between predictors and the outcome (Allison, 2012; Peng et al., 2002). This makes logistic regression ideal for categorical survey data such as those analysed in this study.

Let Y_i denote the binary outcome for student i where:

$$Y_i = \begin{cases} 1, & \text{if the student missed class due to caregiving or employment burden} \\ 0, & \text{otherwise} \end{cases}$$

The logistic regression model is expressed as:

$$\log\left(\frac{\pi_i}{1 - \pi_i}\right) = \beta_0 + \beta_i X_i + \varepsilon_i$$

Where the β_i s are the coefficients to the X_i (gender, caregiver, caregiver burden, job burden, marital status, age group and *gender × caregiver* interaction), the π_i is the predicted probability that student i experiences academic disruption and ε_i is the random error term.

The logistic regression model was selected for theoretical and methodological reasons such as suitability for binary outcomes (Hosmer et al., 2013), interpretability (Long, 1997), flexibility (Peng et al., 2002) and robustness (Allison, 2012).

Results

This section presents the findings from the analysis of survey data collected from 316 students. Academic disruption was defined as missing at least one class because of caregiving responsibilities or employment commitments. Role status was classified as “None”, “Caregiver only”, “Job only” or “Dual roles”. Primary inference draws on a logistic regression of the composite outcome on role status and gender, adjusted for age group and marital status, whereas the predicted probabilities from the same model clarify the role–gender pattern.

The descriptive statistics in Table 1 provide an overview of the characteristics of the study population, stratified by gender (Female, Male, and Other/Prefer Not to Say [PNTS]) and presented as counts with raw percentages. The total sample size was 316 individuals, which represented a 96.9% response rate. A clear gender disparity is evident across the entire dataset, with males constituting the majority (58.86%), followed by females (40.19%) and a very small proportion (1.90%) of the respondents who preferred not to disclose their gender identity. The population was relatively young, with the largest groups being those aged 18–24 (51.27%) and 25–34 (43.67%), while the 35–44 cohort was much smaller (6.01%).

Table 1*Descriptive Characteristics of the Study Population*

Characteristic	Female <i>n</i> (%)	Male <i>n</i> (%)	Other/PNTS <i>n</i> (%)	Total <i>n</i> (%)
Age group of respondents				
18–24	56 (34.57)	105 (64.81)	1 (0.62)	162 (100.0)
25–34	62 (44.93)	74 (53.62)	2 (1.45)	138 (100.0)
35–44	10 (52.63)	8 (42.11)	1 (5.26)	19 (100.0)
Caregiving/Employment role status				
None	50 (29.59)	118 (69.82)	1 (0.59)	169 (100.0)
Caregiver only	36 (46.15)	41 (52.56)	1 (1.28)	78 (100.0)
Job only	6 (50.00)	6 (50.00)	0 (0.00)	12 (100.0)
Dual roles	36 (60.00)	22 (36.67)	2 (3.33)	60 (100.0)
Missed class due to caregiving				
No	69 (31.94)	144 (66.67)	3 (1.39)	216 (100.0)
Yes	58 (58.00)	41 (41.00)	1 (1.00)	100 (100.0)
Missed class due to job				
No	85 (34.41)	160 (64.78)	2 (0.81)	247 (100.00)
Yes	43 (60.56)	26 (36.62)	2 (2.82)	71 (100.0)
Missed class due to caregiving or job (any = 1)				
0 (No disruption)	58 (29.74)	136 (69.74)	1 (0.51)	195 (100.0)
1 (Any disruption)	69 (57.02)	49 (40.50)	3 (2.48)	121 (100.0)
Primary caregiver in household				
No	56 (30.94)	124 (68.51)	1 (0.55)	181 (100.0)
Yes	72 (52.17)	63 (45.65)	3 (2.17)	138 (100.0)
Caregiving makes school challenging				
No	55 (30.73)	123 (68.72)	1 (0.56)	179 (100.0)
Yes	72 (52.55)	62 (45.26)	3 (2.19)	137 (100.0)
Job makes school challenging				
No	68 (31.19)	148 (67.89)	2 (0.92)	218 (100.0)
Yes	59 (59.00)	39 (39.00)	2 (2.00)	100 (100.0)

Note. PNTS = Prefer Not to Say.

The results revealed significant patterns when cross-referencing gender with various life roles and academic challenges. With regards to Caregiving/Employment role status, the majority of respondents (53.48%) reported having “None” of these roles, and within this group, males were predominant (69.82%). However, as roles were added, the gender distribution shifted. For instance, in the “Dual roles” category (having both caregiving responsibilities and a job), females became the majority (60.00%), which suggests a potential disproportionate burden.

This connection between gender, roles and academic impact is further substantiated by the variables on missed classes. Females accounted for 57.02% of students who experienced any disruption (missing class due to either caregiving or a job), compared with 29.74% in the “No disruption” group. Disaggregating the reasons showed that females constituted a larger proportion than males among students who missed class due to caregiving (58.00%) or employment (60.56%). This indicates that these external responsibilities, when held by women, are a significant source of academic interference.

The perception of these roles as challenging was also gendered. A majority of the respondents who agreed that caregiving makes school challenging were female (52.55%), contrasting with the group that did not find it challenging, which was overwhelmingly male (68.72%). A nearly identical pattern exists for those who found their job made school challenging, where 59.00% were female. Consistent with the observed gender pattern in caregiving responsibilities, the results as indicated in Table 1 revealed that the majority of respondents who self-identified as the primary caregiver in their household were

female (52.17%), while 45.65% were male. In contrast, the majority of respondents who did not identify themselves as primary caregivers were male (68.51%) and 30.94% were female.

Table 2

Logistic Regression of Academic Disruption on Role Status and Gender

DV: academic disruption	OR (SE)	95% Confidence Interval	p-value
Roles (Reference category: None)			
Caregiver only	34.10 (23.03)	[9.08, 128.11]	<0.001
Job only	85.85 (110.75)	[6.85, 1076.03]	0.001
Dual roles	75.26 (57.55)	[16.82, 336.86]	<0.001
Gender (baselevel: Female)			
Male	0.38 (0.25)	[0.10, 1.39]	0.143
<i>Roles × Male</i>			
<i>Caregiver only × Male</i>	1.00 (0.85)	[0.19, 5.34]	0.997
<i>Job only × Male</i>	0.61 (0.95)	[0.03, 13.02]	0.751
<i>Dual roles × Male</i>	0.74 (0.74)	[0.10, 5.33]	0.764
Age (baselevel: 18–24)			
25–34	0.46 (0.21)	[0.18, 1.13]	0.091
35–44	0.33 (0.26)	[0.07, 1.54]	0.159
Married (baselevel: Not married)	3.63 (1.67)	[1.47, 8.93]	0.005
Overall fit statistics			
N	312		
Chi-Square Statistic	97.36		
p-value	<0.01		
Pseudo R ² (%)	47.75		

Note. DV = dummy variable; OR = odds ratio; SE = standard error.

Table 2 presents the findings of a logistic regression analysis predicting the likelihood of experiencing academic disruption. The model examined the impact of role status and gender, their interaction, and control variables (age and marital status), with the results expressed as odds ratios (OR), their standard errors (SE), 95% confidence intervals and associated *p*-values. The model demonstrated a good overall fit, being highly statistically significant ($\chi^2 = 97.36, p < 0.01$) and explaining a substantial portion of the variance in academic disruption (Pseudo $R^2 = 47.75\%$).

The most powerful predictors in the model were the caregiving and employment roles. Holding any form of additional role was associated with substantially higher odds of academic disruption compared to having “None”. Specifically, holding a “Job only” was associated with 85.85 times the odds of disruption relative to students with no additional role ($OR = 85.85, p = 0.001$), while having “Dual roles” (both caregiving and a job) was associated with 75.26 times the odds relative to the same reference group ($OR = 75.26, p < 0.001$). Even being a “Caregiver only” was associated with 34.1 times the odds of disruption relative to students with no additional role ($OR = 34.10, p < 0.001$). These odds ratios should not be interpreted as showing that the “Job only” group experienced significantly greater disruption than the “Dual roles” group. Each estimate represents a separate comparison with the “None” reference category and not a direct comparison between the role groups. The exceptionally wide confidence intervals for these variables, particularly for “Job only”, indicate some uncertainty in the precise magnitude of these effects, but the direction and significance are unequivocal.

The model also tested for an interaction effect between gender and role status to see if the impact of these roles on disruption differed for males and females. However, none of the interaction terms (*Caregiver only × Male*, *Job only × Male*, *Dual roles × Male*) were statistically significant (all *p*-values > 0.75). This indicates that while roles have a massive impact, this impact is statistically similar for both genders; the effect of being a caregiver or having a job on academic disruption is not significantly different for men compared to women.

On examining the main effect of gender itself (while holding other variables constant), the odds of disruption for males were 0.38 times the odds for females, but this result was not statistically significant ($OR = 0.38, p = 0.143$). This suggests that, when controlling for roles, age and marital status, there is no statistically discernible independent difference in disruption rates between males and females.

Regarding the control variables, marital status was statistically significant, with the odds of experiencing academic disruption for married individuals being 3.63 times the odds for those who were not married ($OR = 3.63, p = 0.005$). Regarding age, both the 25–34 and 35–44 groups showed lower odds of disruption compared to the 18–24 reference group ($OR = 0.46$ and $OR = 0.33$, respectively), but these trends did not reach conventional levels of statistical significance ($p = 0.091$ and $p = 0.159$).

The PNTS group comprised only four ($n = 4$) respondents. Crossing this with the four role categories and a *roles* $\times$ *gender* interaction yielded empty or near-empty cells, thereby producing non-estimable or highly unstable interaction terms. To ensure identifiability and precision for the prespecified *roles* $\times$ *gender* model, the primary regression was restricted to female and male.

Table 3

Predicted Probability of Academic Disruption by Gender $\times$ Role (Margins)

Group	Margin (SE)	95% Confidence Interval	p-value
Female $\times$ None	0.110 (0.047)	[0.017, 0.203]	0.020
Female $\times$ Caregiver only	0.778 (0.071)	[0.638, 0.918]	<0.001
Female $\times$ Job only	0.895 (0.105)	[0.690, 1.101]	<0.001
Female $\times$ Dual roles	0.883 (0.055)	[0.775, 0.990]	<0.001
Male $\times$ None	0.046 (0.021)	[0.004, 0.087]	0.028
Male $\times$ Caregiver only	0.583 (0.076)	[0.433, 0.733]	<0.001
Male $\times$ Job only	0.677 (0.190)	[0.304, 1.050]	<0.001
Male $\times$ Dual roles	0.690 (0.115)	[0.464, 0.915]	<0.001

Table 3 presents the predicted probabilities of academic disruption for each gender–role combination, which were derived from the logistic model in Table 2. The baseline probability for individuals with no roles was low at 11.0% for females and 4.6% for males. The adoption of any additional role led to a profound increase in the probability of disruption for both genders. For females, this probability soared to 77.8% for those who were caregivers only, 89.5% for those with a job only and 88.3% for those in dual roles. For males, the increase was also substantial, rising to 58.3% for caregivers only, 67.7% for those with a job only and 69.0% for those in dual roles. All these increases were statistically significant at the 5% level ($p < 0.01$). The predicted probabilities for females were numerically higher than for males within each corresponding role category. However, this observed pattern aligned with the earlier result (Table 2) that the interaction effect between gender and roles was not statistically significant, meaning these differences are not confirmed to be systematic effects in the population.

Discussion

The findings of this study demonstrate that caregiving and employment burdens are powerful predictors of academic disruption, operationalised as missed classes. Students with caregiving responsibilities alone were over 34 times more likely to experience academic disruption than those without additional roles, while those in employment and dual-role categories showed even greater odds of disruption. These effects remained robust after adjusting for demographic controls such as age and marital status, with the model explaining nearly half of the variance in disruption outcomes. The interaction between gender and role status was not statistically significant, which suggests that while women appear numerically more affected, the burden of roles substantially elevates disruption risks for all students, irrespective of gender. This pattern indicates that the principal source of disruption may lie in the competing demands placed on students' time and resources and not in gender alone, although gender may still shape how those demands are experienced and managed.

The strong association between caregiving and disruption is consistent with existing literature documenting the hidden burdens faced by student carers. Research in Ghana and other SSA countries has shown that caregiving demands limit study time,

increase stress and reduce attendance (Agyemang-Duah et al., 2024; Akpan-Idiok et al., 2020; Amos et al., 2021). The findings reinforce this evidence by quantifying the scale of impact, revealing caregiving as not merely an inconvenience but a profound determinant of academic participation. This aligns with Kisangala et al.'s (2025) systematic review, which highlighted the psychological and economic strain borne by informal caregivers in SSA, often without institutional support. The magnitude of odds ratios observed in this study suggests that caregiving responsibilities, if unrecognised, may be among the most substantial barriers to equitable higher education participation in Ghana.

Employment roles exerted equally, and in some cases stronger, disruptive influence on academic engagement, and students working during term time were over 85 times more likely to miss classes than peers without additional roles. This resonates with meta-analysis by Kroupova et al. (2024), who documented the negative academic consequences of excessive work hours, and with Ghana-specific evidence that employment often forces students to trade class attendance for income generation (Tetteh & Attiogbe, 2019). Unlike in high-income settings, where part-time work is often supplementary (Creed et al., 2023; Samaratunga & Kamardeen, 2025), the Ghanaian context positions employment as a financial necessity, making disruption not an individual choice but a structural outcome of limited financial aid and widespread informal labour markets (ILO, 2025). This reinforces the need to conceptualise student employment in SSA as a structural rather than voluntary phenomenon.

Although gender–role interaction terms were not statistically significant, descriptive results and predicted probabilities showed that women bore a disproportionate share of disruption, especially when holding dual roles. Female students who were both caregivers and workers had an 88% predicted probability of missing classes, compared to 69% for their male counterparts. This aligns with global findings that women undertake the majority of unpaid care work (United Nations, 2023; UN Women, 2024) and with SSA-specific evidence of female students' greater exposure to time poverty (Carmichael et al., 2024, 2025). While the statistical non-significance of interaction terms may reflect sample size limitations or model variability, the descriptive patterns are consistent with previous studies documenting the compounded disadvantage faced by student-mothers in Ghana and South Africa (Amos et al., 2021; Shange & Mthembu, 2025). These results thus underscore the salience of gender in shaping lived academic experiences, even when interaction effects are not formally significant.

The finding that marital status significantly increased the likelihood of disruption supports the hypothesis that family obligations compound student role strain. Married students were 3.6 times more likely to report academic disruption than their unmarried peers, reflecting how spousal and parental responsibilities intersect with academic demands. However, marital status should not be interpreted as a proxy for caregiving, since caregiving responsibilities were measured separately and may also be substantial among unmarried students. Rather, the result suggests that marriage may introduce an additional layer of household and relational obligations beyond those captured by caregiving status alone. This resonates with Offei et al.'s (2025) analysis of caregiving dynamics in Ghana which highlighted the intersection of marital and caregiving commitments in shaping labour outcomes. The implication is that marital commitments add another layer of responsibility which intensifies the challenge of sustaining consistent engagement in academic activities.

The findings provide partial support for the theoretical expectations of the study. The strong associations between caregiving, employment and academic disruption are consistent with the Conservation of Resources framework, which proposes that competing demands can deplete the time, energy and material resources available for other roles. The gender pattern is less straightforward. Although RCT provides a useful explanation for why women may encounter stronger social expectations around caregiving, the non-significant gender-role interactions indicate that the disruptive consequences of caregiving and employment were not statistically confined to women in this sample. The findings, therefore, suggest that gender may be especially important in shaping exposure to competing roles, while the academic consequences of those roles extend across genders.

Implications of the Study

The implications of these findings are far-reaching for higher education policy in Ghana and beyond. First, the scale of disruption associated with caregiving and employment suggests that institutional inaction perpetuates inequity. International evidence demonstrates the effectiveness of targeted interventions such as subsidised childcare, flexible course delivery and financial aid tailored to student-parents and working students (Neves et al., 2025; U.S. Department of Education, 2024). Yet such supports are largely absent in Ghanaian higher education. Without systematic recognition of student carers and workers, universities risk excluding substantial segments of the student population.

Second, the gendered patterns observed in disruption probabilities call for gender-responsive policies. United Nations (2023) and Ford et al. (2025) emphasise the importance of recognising unpaid care in educational systems. For Ghana, this translates into integrating caregiving status into student support frameworks, offering on-campus childcare and embedding flexibility in course timetabling. Such interventions would not only improve retention but also align with the international agenda for inclusive and equitable education under the Sustainable Development Goals.

Limitations and Future Research

The wide confidence intervals for some role categories indicate variability that may reflect sample size constraints. The cross-sectional design also limits causal inference, though the strength and consistency of associations provide compelling evidence of role-related disruptions. The findings should also be interpreted within the institutional and jurisdictional context of a single technical university in Ghana. Differences in caregiving norms, employment conditions, student support systems and institutional policies across universities and national settings may influence the extent to which these findings are transferable to other contexts. Future research should employ longitudinal designs to capture the dynamic interplay of roles over time, while multi-institutional or cross-jurisdictional studies could illuminate contextual variations. Additionally, qualitative approaches would deepen understanding of how students navigate these competing roles.

Conclusion

This study concludes that caregiving and employment are central determinants of academic engagement in Ghanaian higher education. Both roles significantly increase the likelihood of academic disruption, with students in these categories several times more likely to miss classes than their peers without additional roles. Although gender–role interactions were not statistically significant, descriptive results showed that female students bore a disproportionate share of disruption. These findings highlight how time poverty, cultural expectations and structural financial constraints intersect to disadvantage students, especially women, in SSA. The evidence affirms that caregiving and employment responsibilities must be recognised not as peripheral challenges but as core issues shaping student success in higher education.

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