



## Factors contributing to gender disparities in academic achievement at a tertiary institution in Botswana



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### ABSTRACT

*This study seeks to explore the factors contributing to gender disparities in academic achievement among tertiary students at an educational institution in Botswana. While academic achievement among male and female students has garnered increased attention, limited research has focused on the tertiary level. Employing a transformative qualitative research approach, the study utilized in-depth interviews and documentary analysis for data collection. Thematic Content Analysis was employed for data analysis. Results indicated that, although male students outperformed female students in all subjects, the gender gap was not significantly pronounced. Factors affecting female students included biological aspects such as menstruation, mood swings, menstrual pain, and absenteeism, along with challenges related to unplanned pregnancies, psychological stress due to financial strain, and economic difficulties. The study recommends the implementation of an Intersectional Gender Mainstreaming Framework in higher education institutions to address gender gaps in academic achievement.*

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## Introduction

Significant disparities persist in tertiary education enrolment, where women often outnumber men, especially in the United States and other Western countries (Stoet & Geary, 2020). While efforts have been made to promote gender parity in education globally, challenges remain, particularly in empowering women in certain African nations (Bossavie and Kanninen, 2018). For instance, in ASEAN-10 nations, although there are favourable trends in female enrolment and completion rates in tertiary education, countries like Malaysia and the Philippines still face significant challenges in ensuring equitable educational opportunities for women (Harun and Ibrahim, 2022; Aina et al., 2021). Similarly, while advanced economies have made strides in closing the gender gap in tertiary education enrolment, regions like South Asia and Sub-Saharan Africa continue to struggle with disparities in educational access (World Bank, 2018).

In Africa, particularly in countries like Botswana, women continue to lag in higher educational achievement, highlighting the need for targeted interventions to address gender disparities in academic achievement (Bertocchi & Bozzano 2020; Van Bavel et al., 2018). In a study conducted by Afrobarometer in 2016 following the Millennium Development Goals (MDGs), it was revealed that while primary education is widely accessible in Botswana, there exists a pressing need for expanded post-secondary education to equip individuals with the requisite skills for the global knowledge economy. The Afrobarometer survey of 2014 found that only 22% of respondents had completed some form of post-secondary education (Lekalake, 2016). Moreover, UNESCO's 2018 study highlighted a significant demand for increased enrolment at the tertiary level, alongside a notable gender disparity in academic achievement exacerbated by low enrolment rates. However, enrolment alone fails to explain the disparity in the attainment of advanced degrees among women. This underscores the critical concerns raised by the 2018 UNESCO report, particularly regarding the discrepancy between the majority of women enrolled in undergraduate programs and their underrepresentation in academic leadership roles and scholarly publications. Given the lack of satisfactory answers to these concerns, it becomes imperative to investigate the gender gap

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at the tertiary level, particularly within the African context, to identify the factors contributing to these disparities. While existing research has contributed to understanding gender disparities in education, this study seeks to delve deeper into the factors contributing to gender differences in academic achievement in a tertiary institution in Botswana. By examining these factors, this study aims to offer insights into closing the gender gap in education without disadvantaging any group. The paper will discuss the following: Literature review, methodology, results, discussion and conclusion.

## **Literature review**

In recent years, extensive research has focused on understanding and addressing the global issue of the gender gap in education (Van Bavel et al., 2018; Bertocchi & Bozzano 2020). This gap, characterized by disparities in educational achievement between genders, has historical roots, with women historically experiencing lower levels of accomplishment compared to men due to unequal access to educational opportunities (Delaney & Devereux, 2021). However, there has been notable progress since the post-World War II era, with a significant increase in women's educational achievements leading to a reduction in the gender gap across many nations (OECD, 2015). The following literature review will discuss the following themes derived from the study objective; Genetic factors influencing educational achievement, cultural factors influencing gender variances in educational achievement and the gendered roles that burden female students in tertiary education.

### **Genetic factors influencing educational achievement**

According to Branigan et al. (2013), the impact of hereditary and environmental factors on educational achievement varies across contexts and changes over time due to differences in education systems and communities. The significance of individual genetic variation may be more pronounced in democratic societies, while in closed social contexts with limited social mobility, social qualities may play a more essential role. Botswana, considered a democratic country in Southern Africa, serves as an example of this context (Nagar, 2015). Studies in Norway and Spain found that the influence of genetic factors on education became more prominent after the implementation of educational reforms, emphasizing equal educational opportunities (Colodro-Conde et al., 2015; Silventoinen et al., 2021).

Contrary to the narrative suggesting that genetic factors may contribute to gender differences in academic performance, a recent investigation challenges this notion. Haworth et al. (2008) examined the genetic and environmental causes of school science performance in a large sample of nine-year-old twins. Results indicate a heritability of .62 and environmental effects of .14, with no significant qualitative or quantitative sex differences. This suggests that boys and girls are influenced by the same genetic or environmental factors to a similar extent. Despite the extensive sample size, no significant mean differences were observed between the sexes, although males had higher variances.

### **Cultural factors influencing gender variances in educational achievement**

According to various studies, there is a correlation between disparities in test scores and cultural attitudes: girls tend to outperform boys in nations with higher gender equality in their cultural contexts (Guiso, Monte, Sapienza, & Zingales, 2008; Hyde & Mertz, 2009). This research highlights that women's socio-cultural and socio-economic circumstances significantly influence their goals and aspirations for pursuing higher education. The challenges faced by females, particularly those enrolling in primary school, act as daily impediments to their educational endeavors. To provide women with genuine opportunities for pursuing post-graduate education on par with men, it is crucial for all stakeholders in the education sector and society to recognize that increasing female access to primary education requires identifying and addressing the difficulties they encounter in this process. The literature indicates that culturally assigned gender roles, such as early sexualization, marital responsibilities, and motherhood, hinder female progress in higher education.

#### *Culture reinforcing gender stereotypes*

According to Alao (1998) and Ellemers (2018), cultures reinforcing gender stereotypes contribute to the rivalry between men and women. Many African societies are patriarchal, assigning women primarily domestic roles and devaluing their education. Aluko (2005) argues that women face diminished prospects for higher education due to traditional responsibilities as spouses and mothers. This cultural impact persists, limiting women to low-paying jobs and hindering their educational progress even at higher levels.

#### *Early sexualisation of females and impact on educational achievement*

In the study by Alabi et al. (2019), it is shown that certain cultural or traditional practices may not necessarily hinder girls' access to higher education. However, a previous investigation by Lulu and Mushi (2009) in the Morogoro region of Tanzania, focusing on the "cultural impact of gender inequality on education," found that a significant majority of participants (94.7%) believed that cultural practices contribute to the early sexualization of girls, increasing the likelihood of engaging in sexual activities at a young age. Consequently, this contributes to the spread of HIV/AIDS and sexually transmitted diseases, establishing a correlation between cultural practices, health habits, and academic success impediments.

### *Marital responsibilities and impact on educational achievement*

Yebo and Meno (2015), highlight in their research titled "Socio-cultural factors affecting gender inequality in higher education: the case of doctorate students in some Cameroonian universities" that the influence of socially prescribed gender roles persists as a substantial factor affecting women's educational achievement. Married women are commonly anticipated to bear children while concurrently continuing their educational endeavours, hence presenting a formidable obstacle to the pursuit of tertiary-level education due to the inherent demands associated with it. Gender-specific duties are present in all communities, affecting women.

### **Gender educational achievement and household chores**

A study conducted by Manwa (2014), examined the impact of gender roles on the academic achievement of female university students at the tertiary level. The findings of this study indicate a significant influence of gender codes on the academic performance of female university students. Gender norms, as well as societal attitudes, are strongly associated with the academic performance of female university students. The availability of homework assignments has been identified as a significant cultural factor that influences the academic achievement of female students. The study duration of female students exhibits a decline in conjunction with their engagement in homework tasks.

### *The burden of homework on female students and academic achievement*

Omenge and Nasango (2010) found a strong association between female students' engagement in their studies, academic achievement, and commitment to completing homework assignments. This suggests that increased involvement in household tasks among female university students leads to decreased engagement during lectures, posing a risk to their academic success. This finding is consistent with Dimbisso's (2009) research, revealing that female students face significant academic burdens due to substantial homework duties, resulting in increased uncertainty, heightened weariness, limited time for assignments, and reduced devotion to coursework. Meggitt and Walker's (2007) observations support the notion that, on the whole, women tend to engage in more domestic tasks than men.

Contrary to Ford's (2002) argument that women actively promote gender equality, the outcomes of this study challenge the objectives of the ongoing women's rights movement. The presence of homework assignments highlights the phenomenon of certain female university students engaging in late-night studying and early-morning wake-ups to complete their tasks, leading to increased tension and weariness and ultimately reducing study time for female students. These findings align with Ford's (2002) assertion that women bear a greater burden in fulfilling household and sexual roles compared to men, impacting female university students.

According to Manwa (2014), female university students not admitted often exhibited signs of mental exhaustion during lectures, hindering active participation in discussions. The study, grounded in the social work theoretical framework, links societal expectations to superstitious beliefs reinforcing gender roles. It suggests that women, viewed as primarily responsible for domestic tasks, may face obstacles in pursuing higher education due to these ingrained beliefs. The research highlighted that female students experienced stress from domestic responsibilities, including meal planning, food preparation, dishwashing, house cleaning, laundry, and maternal duties. These tasks, considered obligatory, impact female university students who are expected to balance education with essential caregiving.

Aligned with Rao's (2004) perspective, the study noted that many female students, totalling 100, are frequently confined to their homes to fulfil domestic responsibilities, adversely affecting their physical and mental well-being. Particularly impactful on female students not residing in university accommodations during their third or final year, additional study time is required due to academic rigor.

The findings indicate that female students face greater challenges in their last undergraduate year compared to male counterparts, attributed to additional household responsibilities. The study emphasizes the potential impact of motherhood, leading to difficulties in consistently meeting assignment deadlines for female university students.

### *Motherhood and gender educational achievement*

Evans (2003) suggests that motherhood accentuates femininity, emphasizing women's role in direct caregiving, supported by research indicating women invest more time in nurturing children (Meggitt & Walker, 2007). Motherhood significantly influences academic outcomes, distress, and anxiety among female undergraduate students. The study unveils how escorting children or siblings to healthcare appointments contributes to higher absenteeism, impacting overall educational quality. Ford et al. (2008) argue that household obligations make female students more vulnerable, aligning with Watkins' (2000) research, indicating societal norms related to motherhood negatively affect female students' academic achievements, creating a challenge in balancing educational and work responsibilities.

Dimbisso (2009) notes a notable correlation between academic achievement, absenteeism, and the concept of motherhood, suggesting a negative association between increased absence and decreased academic performance. Female students, valuing the role of motherhood more than their male peers, perceive themselves as caregivers. The study reveals a significant proportion of female participants embracing motherhood with profound commitment.

According to Haralambos and Holborn (2008), motherhood represents the societal status held by women, defining them as caretakers and providers within the family. Eurydice (2010) observes that female university students often find themselves in the role of motherhood rather than choosing it autonomously, potentially adversely affecting their academic performance, creating a dilemma regarding the extent of educational achievement for females.

## **Research & Methodology**

### **Study Setting**

This research was conducted at a private tertiary educational institution in Botswana, known as institution XYZ. To maintain confidentiality, the actual name of the institution has been replaced with the acronym XYZ. Established in 2003, XYZ operates as a Damelin franchisee under the authority of Damelin South Africa. It is officially recognized by the Botswana Qualifications Authority and offers Technical and Vocational Education and Training (TVET) programs.

### **Research Design**

A case study research design was employed, allowing for a flexible and comprehensive exploration of the educational context. This design facilitated an in-depth investigation of specific participants and their experiences.

### **Sampling**

Criterion-purposive sampling was utilized, establishing specific criteria for participant selection. The study focused on students from various programs, ensuring equal representation of both genders. Interviews were conducted with 2nd and 4th year students to assess academic performance and identify influencing factors. Participants were selected based on their availability and categorized by biological sex.

### **Data Collection Methods**

In-depth interviews were conducted to gather insights into academic disparities, socio-economic factors, coping strategies, and peer pressure. Document analysis involved reviewing students' academic records, focusing on final year results from their first year.

## **Analysis and Findings**

Content thematic analysis informed the data analysis process, involving the categorization of data and the creation of new categories. Data from tests and grades was presented in forms of graphs for clarity.

### **Ethics**

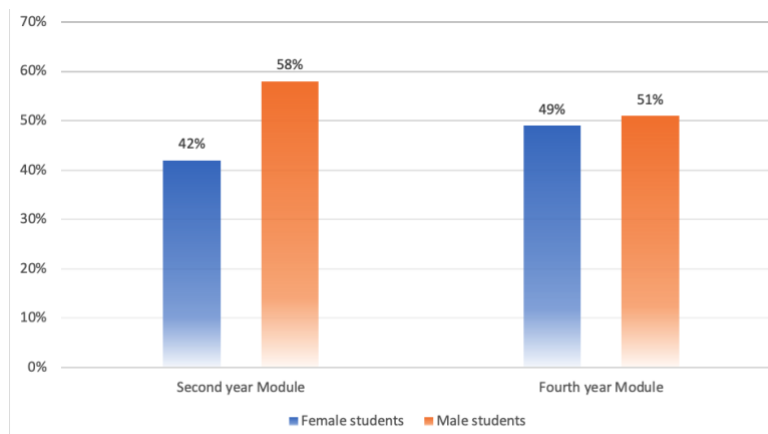
Ethical clearance was obtained from the North-West University Research Ethics Committee. Informed consent was secured through email communication, explaining the project, and participants were given the option to withdraw. Pseudonyms were used to ensure anonymity, and confidentiality was maintained by safeguarding private information, used solely for research purposes. The researcher adhered to ethical standards outlined by the University of North-West.

### **Results**

#### *Differences in academic achievement between female students and male students*

This subsection discusses gender differences in academic performance, specifically in Management Sciences. Contrary to global trends where females typically outperform males at the tertiary level, this research reveals consistent superior performance by male students across all modules, extending to both year 2 and year 3. Possible explanations for these gender disparities include environmental or contextual factors such as socialization, gender biases in teaching, and gender-related biases in module assessments. Internal factors, like academic motivation, further contribute to these differences, with male students demonstrating higher motivation levels. However, the limited sample size and focus on physiology students in this study may impact the generalizability of the findings.

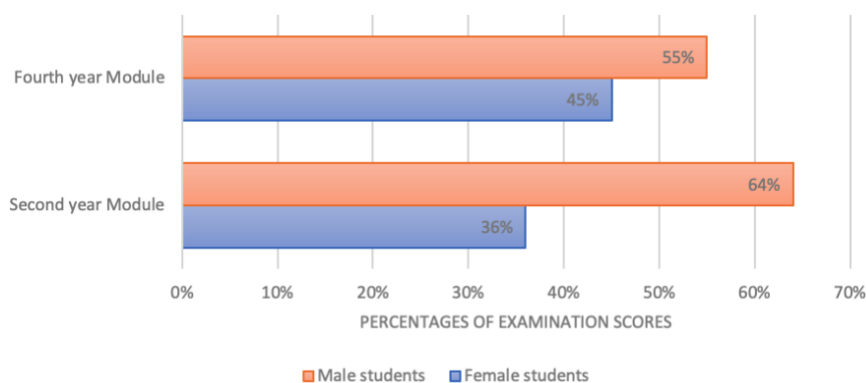
Analyzing specific subjects, such as Introduction to Accounting (IA) in the 2nd year and Financial Accounting in the 4th year, male students consistently outscored their female counterparts. While there was a slight increase in the pass rate for females from 42% to 49% in both years, males maintained an overall higher pass rate of 51% to 58%.



**Figure 1:** Introduction to Accounting (2nd year) and Financial Accounting (4th year) scores for females and males scores; *Source:* Empirical findings from the field study

The graph illustrates a consistent trend in academic performance, with male students consistently outscoring female students in the Introduction to Accounting and Financial modules. This aligns with Sam's (2016) study, which found that male students majoring in Financial Accounting tend to have higher academic success than their female counterparts. The results in Figure 6.3.1 indicate that while there is no significant difference in the academic performance of male and female Accounting students in undergraduate courses, males consistently achieve higher mean performances across all courses.

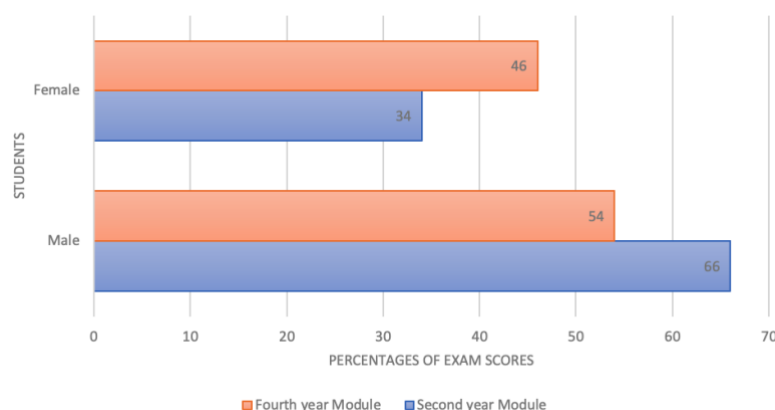
Moving on to the Introduction to Computer Applications module (Figure 6.4), the gender differences persist. In the 2nd year, female students scored 45%, while male students scored 55%. The gap widened in the 4th year, with male students exhibiting better scores, especially in the Advanced Computer Systems module. The overall pattern suggests a consistent performance gap favoring male students across different modules and years.



**Figure 2:** Gender difference in academic achievement in Introduction to Computer Applications in (2nd year) and Advanced Computer Applications in (4th year); *Source:* Author

The data from this study revealed that male students exhibit marginally superior academic performance in most mandatory courses. Results reveal that female students perform a little lower than the male students. In Figure 6.5, females that participated in the study had an average of 34 % and males scored 66% during 2nd year in Principles of Marketing whilst the gap between the two genders was reduced with male students having an average pass rate of 54% whilst female students had 46% in Marketing Management. This is the trend that was exhibited in all other modules as well.

The study findings suggest that female students in Computer Science are more affected by environmental changes, with potential negative impacts on their performance, including a higher likelihood of pregnancy. The study's data indicates that male students generally outperform female students in most mandatory courses, with females averaging 34% and males scoring 66% in Principles of Marketing during the 2nd year. The gap narrowed in Marketing Management, where male students had a pass rate of 54%, and female students had 46%. This trend was consistent across various modules.



**Figure 3:** Gender difference in academic achievement in Principles of Marketing, in (2nd year) and Marketing Management in (4th year); *Source:* Author

### Factors influencing academic performances for female students

The following section will present findings on the factors influencing academic performance of the students over the course of 2020/21 and 2021/22 academic years.

#### *Menstruation, mood swings and female academic performances*

One of the challenges which was often cited by female participants of this study was the effects of menstruation and mood swings on academic performance and achievement. The researcher noted that there are various shifts in a woman's mental state that occur during the menstrual cycle, including irritability, moodiness, depression, and anxiety. There is a correlation between a female's menstrual cycle and her academic performance. This correlation is due to the fact that a girl's mental status tends to deteriorate in the days leading up to and during her period.

One participant A6 had this to say:

*Female students need a good nurturing environment, and they need much attention because from adolescents they go for their menstrual and moods, attitude can change leading to loss of concentration. I noted that during my own schooling days I was not really affected yet I know so many other girls who wouldn't relate well with other during this period. We are not aware psychologically how much does that affect one preparing for exams or group assignments but surely the results can be detrimental although to many other girls and young women it has never been cited as a problem or excuse for failure until now (Participant A6, Lecturer, Female).*

*Most females like me experience menstrual pain and it causes some to skip classes and at times one may spoil themselves during class and the thought for school disappears as we are uncomfortable. In so doing our ability to finish to perform in different subjects is affected (B24, Undergraduate student 2<sup>nd</sup> year, Female, 22).*

When following up on the impact of menstrual symptoms on academic performance during the interviews, most of the female students interviewed indicated a lack of desire to attend college when menstruating. Additionally, those who did attend had difficulty concentrating during study hours. The menstruation symptoms were also impairing the students' ability to remember. Menstrual symptoms had an impact on the student's examination performance. A larger proportion of study participants expressed disinterest in taking their exams during menstruation and faced difficulties adequately preparing for the assessment. Over 50% of the study participants saw a decline in their examination writing performance due to a lack of attention during the test. The menstrual symptoms impeded students' completion of homework and participation in extracurricular activities.

In an African context the effects of dysmenorrhea and premenstrual syndrome is serious as support rarely comes from the family or friends with regards to this, as the society is predominantly patriarchal. The social norms and values upheld in different communities makes it difficult for the girl child to speak freely on how they are affected during menstruation.

#### *Absenteeism*

The study participants mentioned that the occurrence of menstruation was associated with higher rates of absenteeism. The phenomenon of absenteeism exerts a significant impact on the academic performance among female students. Female students encountered instances of non-attendance resulting from the manifestation of symptoms and challenges related to the menstrual cycle, encompassing both entire and partial days of absence.

*I do not go to the lectures during my period days. It is useless to attend. The pain and irritation, makes me to feel disengaged. When I am walking down corridors at times you would feel like everyone is staring at you. It is better for me to study in my room. In fact, everyone will be just boring me also. (B22, Undergraduate student 2<sup>nd</sup> year, Female, 22).*

Another participant observed:

*Most female students do not have money to buy pills to stop pain...I have a feeling that most women suffer silently without accessing medical care because usually this pain is treated as normal. But I honestly tell you, it leads to depression in young women as that pain is coupled with academic pressure... as for me I feel so sad and anxious during that time so usually I exchange with my friend she would bring me notes from class or I would hunt them later. At times it will be difficult to assess what others have learned already in classroom, so naturally I think my academic performance is affected. (B9, Undergraduate student 2<sup>nd</sup> year, Female, 22).*

Based on feedback from female students, it is evident that dysmenorrhea significantly affects their attendance, hindering their ability to concentrate and actively participate in classroom activities, ultimately adversely impacting their academic performance. The students expressed dissatisfaction with their personal study habits, struggle to maintain focus during classes, and a perception that their university overlooks the potential consequences of pain on attendance and academic achievement.

#### *Unplanned pregnancies and academic performance of female students*

The study participants identified unwanted pregnancies as a factor contributing to the academic performance gap between female and male students. It is noteworthy that even when male students become fathers, their indirect involvement is limited as the responsibility of carrying the baby falls primarily on the female partner. Instructors concluded that many young women entered their first year of college with the intention of becoming pregnant, while others experienced unplanned pregnancies during their first year. As a direct consequence of these circumstances, both the academic performance of the students and their ability to pursue higher degrees were adversely affected. Participants shared their perspectives.

*Early and unplanned pregnancies affect female students. Their divided commitment reduces the concentration to their educational work. I noted in each class I taught there was a pregnant woman there. (Participant A10, Lecturer, Male).*

*I watched one of my friends in distress because the father of the baby did not take responsibility. This affected her studies as she was emotionally not ok. She had to deal with the rejection as well as experiencing pregnancy for the first time without support. Naturally, I think this is what gives male students an edge over female students at this level (B26, Undergraduate Student, 2<sup>nd</sup> year, Female, 22).*

The experience of getting pregnant while at university significantly impacted how young women focused on their studies. Respondents expressed that they would discourage fellow students from becoming pregnant at university due to the immense stress, which, in turn, affected their academic performance. This impact was predominantly felt by female students rather than male students. The majority of participants agreed that pregnancy would hinder female academic progress, as elaborated in the subsequent sections.

#### *Psychological stress due to pregnancy*

The female participant provided additional insights into why some female students were not performing as well as their male counterparts, specifically highlighting their experiences of pregnancy during the first year of university. Notably, the physiological demands of pregnancy served as a persistent source of stress, detrimentally affecting the academic performance of the participants. Consistent fatigue and drowsiness were identified as significant hurdles for most participants in managing their academic responsibilities. The interview excerpts revealed that severe fatigue and nausea were often accompanied by a feeling of being drained. One participant remarked:

*My first-semester test scores tumbled because I discovered I was pregnant and because everything was so disorganized. I was unable to concentrate and devote my entire attention to my studies, resulting in failure. When I was attempting to study, I would feel tired, and I would sometimes pick up a book, feel drowsy, and fall asleep; this hindered me. Throughout my entire first trimester, I was ill, and attending classes became a concern. Clearly, I was alone on that journey. Even if he attempts to help, the father of the baby is preoccupied with his studies also and can only be of limited assistance. (Participant B12, Undergraduate student 2<sup>nd</sup> year, Female, 22).*

*Things have been hard on first trimester of pregnancy, I was struggling with eating and coming with terms that I am pregnant. This was something new to me and it is unfortunately that my friends ignored me or due to the pregnancy or they became suddenly busy with their lives, because they don't walk with me to classes or check on me. That is when my grades started to be affected because I missed some classes and a lot of study time although in my second trimester, things changed a lot, I could attend classes and also my friends had now accepted that I'm pregnant. It is difficult without social support. (Participant B32, Undergraduate student 4<sup>th</sup> year, Female, 21).*

The importance of social support during pregnancy was consistently emphasized by all participants, as evidenced by the shared experiences.

#### *Pregnancy causes financial strain for female students*

When it comes to higher education, female students are more likely to experience the effects of financial distress compared to male students. A lecturer mentioned that young women who become pregnant face additional challenges in terms of their finances. Some of these students have no money, and as a result, they were forced to withdraw from college; others, however, chose to continue their education in order to secure a brighter future for their children. Participants had this to say:

*They are single mothers and have seen the lifestyle of looking for jobs without tertiary education qualifications. Tertiary education gives them an upper hand in recruitment. Having children has made them see the hardships of life while they do not have money. Therefore, the only option could be to focus on education, pass, and get degrees, then hustle for jobs.*

(Participant A6, Lecturer, Female).

*My life took a turn for the worse when I got pregnant during my studies as my bursary support money was not enough to take care of my needs. Besides this, I also noted among my friends who come from poor backgrounds, they had to share the stipend money with siblings, as female, we fulfil motherly duties to our siblings, something which male students do not even think of. Such strain does affect me and how perceive my educational progress.* (Participant B32, Undergraduate student 4<sup>th</sup> year, Female, 22).

For the majority of the participants, having sufficient financial resources during pregnancy was crucial. Given that they were full-time students, most of them lacked a source of income and depended on their parents or guardians for financial support. However, pregnancy brought about its own set of financial expectations, many of which exceeded the financial means of their parents. Participant B8 elaborated on her experiences:

*When you are pregnant, you must visit the clinic (antenatal clinic) every month, and they will provide you with a specific date. Then, when you need to travel and take a taxi to get to the clinic, you find yourself without funds. Then I must go from friend to friend, borrowing money to go to the clinic, as the majority of individuals do not have money to lend. This has increased my stress levels, and I am finding it difficult to manage my coursework at the same time* (Participant B9, Undergraduate student 2<sup>nd</sup> year, Female, 21).

The experiences of female students navigating academics and concentrating on academic progress were challenging. In comparison to male students, this study did not include male students in early fatherhood.

## Discussion

The study found no significant gender differences in academic achievements in the selected modules. While Cortright et al. (2013) and Vecchione et al. (2014) suggest that intrinsic and extrinsic motivational characteristics impact academic achievement differently for males and females, examination scores in Computer Science reveal no significant gender differences, despite average scores favouring male students. These results align with Berdousis and Kordaki's (2014) study, which analysed gender and academic performance in specific Computer Science subjects. In contrast, Ogan et al. (2006) found gender-related disparities in self-assurance, with female students in Applied IT and Computer Science exhibiting lower confidence, attributed to a lack of encouragement.

Biological determinants associated with menstruation and pregnancy slightly disadvantage women. Physical symptoms of the menstrual cycle were collaboratively supported by Rafique & Al-Sheikh (2018), and Agwa (2023) highlighted pain and dysmenorrhea. Dysmenorrhea affects female students, giving a slight advantage to male students. Findings support Clayton (2008), Hu et al. (2020), Bilir et al. (2020), and Rafique and Al-Sheikh (2018), with the World Health Organisation reporting prevalence. African Feminism emphasizes how societal interpretations of biological differences contribute to gender roles.

Female students adopt coping mechanisms, impacting educational experiences and leading to absenteeism. Findings align with Fernández-Martínez et al. (2020) but diverge from Tadese et al. (2021) on dysmenorrhea's impact. Unique experiences contribute to understanding why male students may perform slightly better.

Pregnancy negatively influences academic progress due to concentration issues, discomfort, and societal expectations. Experiences are not widely known, highlighting challenges faced by pregnant female students. Early fatherhood also negatively impacts educational outcomes. African Feminist Theory advocates for empowering women and challenging cultural norms surrounding menstruation.

## Conclusions

This paper aimed to explore gender differences in academic performances at a tertiary institution in Botswana. Findings indicated that there were no significant gender differences in academic performances. The investigation revealed eight key factors shaping gender variances in educational achievement among tertiary students in Botswana, categorized under socio-economic, political-cultural, and global health factors.

In terms of socio-economic factors, financial constraints emerged as a predominant theme. Despite both genders being affected, female students, facing the impact of African patriarchal society, experienced greater challenges. Additionally, the study found a lack of role models, particularly affecting first-generation college students or those with parents having high rates of illiteracy. This challenge had a more profound impact on female students, leading to increased confusion and a sense of not belonging.

Cultural influences were evident in the study, with Tswana's cultural beliefs reinforcing male dominance and leadership expectations. This influenced the motivation of male students, while female students were subtly guided to be content with secondary roles. To address these findings, the study recommends:

- i. Counselling Support: Provide counselling to female students to enhance self-esteem, perseverance, and reading habits, addressing challenges like menstruation pain and helping them plan proactively.

- ii. Government Incentives: Implement means-tested scholarships for both female and male students to alleviate financial challenges faced by pregnant female students, early fathers, and those from poor families.
- iii. Community Engagement Workshops: Conduct workshops involving the community, government representatives, and stakeholders to empower women and raise awareness about the importance of higher education for female students, challenging patriarchal gender roles.
- iv. Healthcare Access: Ensure access to healthcare services on campus, including clinics and ambulance services. Provide health counselling, contraceptives, and menstrual pain relief to address the specific needs of female students.

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All authors have read and agreed to the published version of the manuscript.

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**Conflicts of Interest:** The authors declare no conflict of interest.

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