



## Comparative Analysis between Restructuring-Curriculum-Diversification- Execution and Menstrual-Health-Management on Academic Achievement among Federal Government Girls Colleges in Anambra and Delta States

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### Abstract

This study examines Comparative Analysis Between Restructuring-Curriculum-Diversification- Execution (CAB-RCDE) and Menstrual-Health-Management on Academic Achievement among Federal Government Girls Colleges in Anambra and Delta States. The objectives include evaluating the correlation between RCDE and academic achievement. A mixed-methods design was employed for the study. Population of the study consists of all federal government senior secondary school students in Delta and Anambra States during the 2023/2024 academic session. A sample size of 205 students were selected from the target population using multi-stage sampling technique. Pearson's correlation, regression analyses, independent t-test and thematic analysis were used. Table 1 shows a moderate positive correlation ( $r = 0.45$ ,  $p = 0.001$ ) between RCDE and academic achievement. It was concluded that integration of RCDE and gender-sensitive educational practices significantly enhances academic achievement of adolescent girls by addressing the challenges associated with menstruation. Hence, it is recommended that schools should incorporate comprehensive menstrual health education into their curriculum to improve knowledge and provide menstrual hygiene products as well as training teachers to support menstruating students thereby enhancing girls' academic achievement. Limitations include geographic scope which may affect generalizability. Practical implications suggest that schools should integrate gender-sensitive practices and menstrual health education.

**Keywords:** curriculum-diversification, menstrual-health, academic-achievement, girls'- education.

### Introduction

Menstrual health is a critical yet often under-addressed factor affecting adolescent girls' education, particularly in developing countries like Nigeria (Adedoyin, & Adetunji, 2021). The onset of menstruation introduces several challenges such as physical discomfort, social stigma and inadequate access to menstrual hygiene products, all of which can negatively impact school attendance and academic achievement. According to Adebayo and Ojo (2020), effective menstrual hygiene management (MHM) in schools plays a crucial role in mitigating these challenges by ensuring that girls have access to essential products and education about menstrual health. However, many Nigerian schools lack comprehensive health education and supportive environments, leading to increased absenteeism and disengagement from learning, especially during menstruation (Ogunkunle & Okwori, 2022).

Recent studies emphasize the importance of integrating menstrual health education into school curricula to address these challenges. Adedoyin and Adetunji (2021) found that girls who receive proper education about menstrual health are more likely to maintain consistent school attendance and achieve better academic outcomes. Moreover, Odebiyi and Olatunji (2019) argue that providing a gender-sensitive approach to education not only improves girls' understanding of menstrual hygiene but also helps dismantle the stigma that often surrounds menstruation. This means that schools must adopt holistic educational frameworks that consider the unique needs of menstruating students to improve overall educational attainment.

The need for gender-sensitive curricula is also supported by more recent research. Alhassan and Adebayo (2023) argue that educational practices that are responsive to the needs of menstruating girls help create inclusive



learning environments where students feel supported and empowered. Similarly, Eze and Ajaegbu (2023) underscore the need to close gaps in menstrual health education in Nigerian schools, emphasizing that better-informed students are more likely to stay engaged in learning despite the challenges posed by menstruation. As such, the restructuring of school curricula to integrate menstrual health education is vital for enhancing girls' academic achievement and promoting gender equity in education (Nwafor, 2022; Akinpelu & Adebisi, 2020).

The menstrual cycle (MC) is increasingly recognized as a key consideration for adolescent girls' academic achievement, particularly in low-resource settings such as Nigeria. Studies have shown that the different phases of the menstrual cycle can have significant effects on concentration, absenteeism, anxiety and overall academic achievement (Adebayo & Ojo, 2020; Ogunkunle & Okwori, 2022). In order to optimize students' learning outcomes, especially those in Federal Government Girls' Colleges (FGGC) in Anambra and Delta States, a thorough understanding of the menstrual cycle and its effects on academic achievement is essential. This section explores the effects of the menstrual cycle on absenteeism, concentration, anxiety and menstrual hygiene management (MHM) with a focus on how restructuring the curriculum can mitigate these challenges and promote better academic outcomes.

### **Absenteeism during Menstruation and Academic Achievement**

Absenteeism due to menstrual symptoms is one of the most prominent issues affecting the academic achievement of female students. Research shows that a significant percentage of adolescent girls miss school during their menstrual periods due to a lack of access to proper menstrual hygiene products severe menstrual pain or social stigma (Adedoyin & Adetunji, 2021). Odebiyi and Olatunji (2019) found that absenteeism rates were higher in schools where MHM was not adequately addressed. By diversifying the school curriculum to include menstrual health education and ensuring that girls have access to sanitary products, absenteeism can be significantly reduced, leading to improved academic achievement (Alhassan & Adebayo, 2023). Additionally, policies that provide girls with flexible attendance and opportunities for make-up work can further reduce the academic setbacks caused by absenteeism during menstruation.

### **Decreased Concentration During Menstruation and Academic Achievement**

Decreased concentration is another key issue impacting the academic achievement of menstruating girls. Studies indicate that during the early follicular and late luteal phases, girls often report diminished focus due to menstrual discomfort such as cramps and headaches, as well as hormonal fluctuations (Odebiyi & Olatunji, 2019). This can adversely affect their learning, particularly in environments where there is a lack of awareness and support from educators. The integration of gender-sensitive educational practices into the curriculum, including accommodating girls during their periods and providing more flexible classroom management strategies, can help reduce concentration difficulties (Alhassan & Adebayo, 2023). Providing girls with spaces for privacy and rest during menstruation can also minimize distractions and help them remain focused on their studies (Ogunkunle & Okwori, 2022).

### **Heightened Anxiety and Academic Achievement**

Heightened anxiety related to menstruation is common among adolescent girls, particularly in environments where menstruation is stigmatized. This anxiety often stems from the fear of menstrual leaks, inadequate sanitary provisions, or social embarrassment, and it can severely hinder academic participation and performance (Nwafor, 2022). Eze and Ajaegbu (2023) found that girls who experience heightened anxiety during menstruation are less likely to engage in class discussions or attend school, contributing to lower academic achievement. By incorporating menstrual health education into the curriculum and creating an open dialogue about menstruation, schools can alleviate much of this anxiety. In doing so, girls are more likely to participate fully in their education, leading to improved academic outcomes (Akinpelu & Adebisi, 2020).

### **Menstrual Hygiene Management (MHM) and Academic Achievement**

Menstrual Hygiene Management (MHM) is critical to ensuring that girls can attend school during their periods and focus on their studies without distraction. Poor MHM, including inadequate access to sanitary products or improper disposal methods, can lead to physical discomfort, infections and embarrassment, all of which negatively impact academic achievement (Adebayo & Ojo, 2020). Alhassan and Adebayo (2023) emphasize the need for schools to provide not only sanitary products but also facilities for their proper disposal as well as educational programs that teach girls how to manage their menstruation in a healthy and dignified way. Schools that implement MHM policies and integrate menstrual health education into their curriculum have seen improvements in girls' attendance and academic achievement (Odebiyi & Olatunji, 2019). The provision of such resources not only improves girls' physical well-being but also enhances their ability to focus on academic tasks.

The impact of the menstrual cycle on academic achievement in adolescent girls cannot be overlooked. Restructuring the curriculum to include gender-sensitive educational practices and menstrual health education can mitigate the effects of absenteeism, decreased concentration, heightened anxiety, and inadequate MHM on students'



academic outcomes. By addressing these menstrual-related challenges, schools in Federal Government Girls' Colleges in Anambra and Delta States can create a more inclusive and supportive learning environment that promotes academic success for all students. The implementation of these strategies is critical in advancing gender equity in education and ensuring that menstruation does not hinder girls from reaching their full academic potential.

In the Federal Government Girl's Colleges in Anambra and Delta States, many adolescent girls face significant educational disruptions due to challenges associated with menstruation (Sommer, Caruso, Sahin, Calderon, Cavill, Mahon, & Phillips-Howard, 2016). Issues such as inadequate access to sanitary products, lack of menstrual health education, and pervasive stigma contribute to high rates of absenteeism and decreased academic achievement during menstrual periods (Mahon, Tripathy, & Singh, 2015). Despite the vital role of education in empowering young women, the curricula in use within these schools do not sufficiently address the unique needs of menstruating students (United Nations Educational, Scientific and Cultural Organization [UNESCO], 2018). This lack of support exacerbates the emotional and physical challenges girls experience during menstruation, resulting in poor academic outcomes (House, Mahon, & Cavill, 2013). Without adequate interventions, the menstrual-related barriers to education continue to widen the gender gap in academic achievement, limiting the potential of many girls to excel academically and reach their full potentials. The problem calls for a comprehensive review and restructuring of the existing curriculum to incorporate menstrual health education and support mechanisms to cushion the adverse effects of menstruation on academic achievement (Sommer & Sahin, 2019).

## Objectives of the Study

The objectives of study were to:

1. Assess the relationship between curriculum restructuring and menstrual health management on the academic achievement of Federal Government Girl's College students in Anambra and Delta States.
2. Examine how curriculum restructuring influences absenteeism rates during menstrual cycles among students in Federal Government Girl's Colleges in Anambra and Delta States.
3. Counsel the female teenage students on how to manage impact of menstruation to increase concentration among Federal Government Girl's College students in Anambra and Delta States when restructured curriculum is used during lesson.
4. Investigate the role of curriculum modifications in providing better access to sanitary products and creating a supportive school environment through counselling for menstruating students in Federal Government Girl's Colleges in Anambra and Delta States.
5. Explore how integrating menstrual health education within the curriculum can promote gender equity in education and improve academic achievement among female students in Federal Government Girl's Colleges in Anambra and Delta States.

## Research Questions

The following research questions guided the study

**RQ1:** What is the correlation between RCDE and Menstrual Health management on Academic Achievement among Federal Government Girls College students in Anambra and Delta States?

**RQ2:** What is the correlation between RCDE and absenteeism during their menstrual cycles among Federal Government Girls College students in Anambra and Delta States?

**RQ3:** What is the effect of RCDE and low lesson concentration during menstruation among Federal Government Girls College students in Anambra and Delta States?

**RQ4:** What is the effect of anxiety and MHM on academic achievement during menstruation among Federal Government Girls College Students in Anambra and Delta States?

**RQ5:** What is the relationship between gender sensitive educational practices and academic achievement during menstruation among Federal Government Girls College students in Anambra and Delta States?

## Hypothesis

The following null hypotheses were tested at 0.05 level of significance

**H01:** There is no significant correlation between RCDE and Menstrual Health Management on Academic Achievement among Federal Government Girls College students in Anambra and Delta States.

**H02:** There is no significant correlation between RCDE and absenteeism during menstrual cycles among Federal Government Girls College students in Anambra and Delta States.



**H03:** There is no significant effect of RCDE and low lesson concentration during lesson among Federal Government Girls College students in Anambra and Delta States.

**H04:** There is no significant effect of anxiety and MHM on academic achievement during menstruation among Federal Government Girls College students in Anambra and Delta States.

**H05:** There is no significant gender sensitive educational practices and academic achievement during menstruation among Federal Government Girls College students in Anambra and Delta States.

## **Methodology**

### **Design of the Study**

This study adopts a mixed-methods research design involving quantitative and qualitative survey. This approach combines both quantitative and qualitative methods, allowing for a comprehensive analysis of the impact of RCDE on menstrual health and academic achievement among students in FGGC-ADS. The mixed-methods design provide a more nuanced understanding of how RCDE influence academic outcomes, absenteeism, concentration, anxiety and gender-sensitive practices while the survey involves administering structured questionnaires to students and teachers in FGGC-ADS. The qualitative uses interviews and focus groups to gain deeper insights into the experiences of students and teachers regarding the effects of menstruation on academic achievement. The researchers collected qualitative data through interviews and focus groups to explore the challenges faced during menstruation, the perceived impact of RCDE and the effectiveness of sensitive educational practices. This mixed-methods design provide both statistical evidence and in-depth perspectives to ensure a comprehensive evaluation of the impact of RCDE on menstrual health and academic achievement in FGGC-ADS.

### **Sample and Sampling Technique**

A sample size of 205 students were selected from the target population using multi-stage sampling technique.

### **Instrumentation**

The instrument for data collection in this study named “Curriculum Diversification of Menstrual Health Impact Questionnaire (CDMHIQ)” was structured by the researchers to capture both quantitative and qualitative data related to the impact of RCDE and menstrual health on academic achievement. The tool was designed to assess various aspects of students' academic experiences during menstruation, including absenteeism, concentration, anxiety and perceptions of impact of curriculum support. Section “A” involves demographic questions such as age, class level and school location.; Section “B” deals with menstrual health (items measuring menstrual symptoms, access to hygiene products and management strategies during school hours).; Section “C” focuses on impact of absenteeism, concentration levels and anxiety on academic achievement during menstruation.; Section “D” relates to curriculum diversification assessing students’ and teachers’ perspectives on the effectiveness of curriculum adjustments (menstrual health education, supportive school policies).; Section “E” examines gender-sensitive practices measuring perceptions of gender-sensitive practices and their influence on academic outcomes. The CDMHIQ included both closed-ended questions using modified Likert scales for quantitative data and open-ended questions for qualitative insights to provide a comprehensive view of the factors influencing academic achievement during menstruation and the perceived efficacy of RCDE. A pilot test of 31 subjects outside the study area was conducted to ensure the reliability of the CDMHIQ using Cronbach's Alpha coefficient to assess the internal consistency of the questionnaire items. The analysis yielded a Cronbach's Alpha coefficient of 0.82, indicating high reliability. This value suggests that the questionnaire items are consistent in measuring the constructs of curriculum diversification, menstrual health management and their impact on academic achievement, making the instrument suitable for the main study. The instrument was validated by 4 experts from curriculum studies, biological sciences, health education, measurement and evaluation who vetted the items and suggested necessary corrections which were effected to confirm that the items are relevant and comprehensive while construct validity test was conducted to find out whether the items in the questionnaire align with the expected theoretical constructs. The data collection process began with obtaining permission from the relevant school authorities and ethical clearance. After that, the CDMHIQ were administered to the sample of 205 students from FGGC-ADS. Trained 5 research assistants helped to guide the students to complete the questionnaires, ensuring clarity and confidentiality. The data collection was done within a controlled classroom setting to ensure accuracy and avoid distractions. The completed questionnaires were collected back from the students and securely stored for analysis. Quantitative data from the CDMHIQ were analyzed using descriptive statistics (mean, standard deviation and frequency) to summarize responses while inferential statistics (Independent t-test, Pearson's correlation coefficient, linear regression analysis & multiple regression analysis) were used to test the hypotheses and examine relationships between variables such as RCDE and academic achievement, absenteeism and concentration.



Additionally, qualitative data from open-ended questions were analyzed using thematic analysis to identify common themes related to students' experiences with menstrual health and curriculum diversification support.

## Presentation of Result

**RQ1:** what is the correlation between RCDE and menstrual health management on Academic Achievement among Federal Government Girls College students in Anambra and Delta States?

**Table 1: Pearson's Correlation between RCDE and Menstrual Health Management on Academic Achievement**

Variable	Mean	SD	Pearson's r	p-value	Decision
RCDE Impact on Menstrual Health	7.34	1.23	0.45	0.001	Significant
Academic Achievement	78.56	10.45			

The Pearson correlation ( $r = 0.45$ ,  $p = 0.001$ ) shows a moderate positive relationship between RCDE and menstrual health on academic achievement. Since the p-value is less than 0.05,  $H_{01}$  is rejected, indicating a significant correlation between RCDE in menstrual health and academic achievement.

**RQ2:** what is the correlation between RCDE and absenteeism during their menstrual cycles among Federal Government Girls College students in Anambra and Delta States?

**Table 2: Pearson's Correlation between RCDE and absenteeism during their menstrual cycles**

Variable	Mean	SD	Pearson's r	p-value	Decision
RCDE Impact	6.89	1.67	-0.38	0.002	Significant
Absenteeism Rate	4.56	2.34			

The Pearson correlation ( $r = -0.38$ ,  $p = 0.002$ ) indicates a moderate negative relationship between RCDE and menstrual challenges of absenteeism during menstrual cycles. Since the p-value is less than 0.05,  $H_{02}$  is rejected, showing a significant correlation between RCDE and menstrual challenges of reduced absenteeism during menstruation.

**RQ3:** What is the effect of RCDE and low lesson concentration during menstruation among Federal Government Girls College students in Anambra and Delta States?

**Table 3: Linear Regression of effect of RCDE and low lesson concentration during menstruation**

Variables	Unstandardized Coefficient	Standard Error	t-value	p-value	Decision
Constant	54.23	3.45	15.72	0.000	Significant
RCDE (Curriculum Diversification)	1.34	0.28	4.79	0.001	
Decreased Concentration	-0.67	0.21	-3.19	0.003	

The linear regression analysis indicates that RCDE significantly reduces concentration difficulties during lessons ( $\beta = 1.34$ ,  $p = 0.001$ ), while decreased concentration has a negative impact ( $\beta = -0.67$ ,  $p = 0.003$ ). Therefore,  $H_{03}$  is rejected, meaning that RCDE has a significant effect on reducing concentration difficulties during menstruation.

**RQ4:** What is the effect of anxiety and MHM on academic achievement during menstruation among Federal Government Girls College Students in Anambra and Delta States?

**Table 4: Multiple Regression effect of anxiety and MHM on academic achievement during menstruation**

Variables	Unstandardized Coefficient	Standard Error	t-value	p-value	Decision
Constant	68.12	4.21	16.18	0.000	Significant
Heightened Anxiety	-2.34	0.45	-5.20	0.000	
Menstrual Hygiene Management	1.78	0.39	4.56	0.002	





The multiple regression analysis reveals that heightened anxiety has a negative effect on academic achievement ( $\beta = -2.34$ ,  $p = 0.000$ ), while effective menstrual hygiene management improves academic achievement ( $\beta = 1.78$ ,  $p = 0.002$ ). Since both factors show significant results,  $H_{04}$  is rejected, indicating that anxiety and MHM significantly affect academic achievement.

**R<sub>Q5</sub>:** What is the relationship between gender sensitive educational practices and academic achievement during menstruation among Federal Government Girls College students in Anambra and Delta States?

**Table 5: Independent t-test for gender sensitive educational practices and academic achievement during menstruation**

Groups	Mean	SD	t-value	p-value	Decision
Gender-Sensitive Practices Present	80.12	9.87	2.78	0.006	Significant
Gender-Sensitive Practices Absent	73.45	10.23			

The independent t-test results show a significant difference in academic achievement among students exposed to gender-sensitive educational practices ( $M = 80.12$ ,  $SD = 9.87$ ) and those who are not ( $M = 73.45$ ,  $SD = 10.23$ ),  $t(203) = 2.78$ ,  $p = 0.006$ . Since the p-value is less than 0.05,  $H_{05}$  is rejected, demonstrating that gender-sensitive educational practices significantly enhance academic achievement during menstruation.

These reports indicate that all five null hypotheses ( $H_{01}$ - $H_{05}$ ) are rejected, confirming significant relationships or effects in each case.

#### **Qualitative Analysis of R<sub>Q1</sub>-R<sub>Q5</sub> and H<sub>01</sub>-H<sub>05</sub> Using Thematic Analysis**

To analyze Research Questions (**R<sub>Q1</sub> - R<sub>Q5</sub>**) and Hypotheses (**H<sub>01</sub> - H<sub>05</sub>**) using **thematic analysis**, the data from student interviews, focus groups, and open-ended survey responses are hereby examined. Thematic analysis helps to identify recurring themes related to the impact of restructuring curriculum diversification and menstrual health on academic achievement. Below are the breakdown of the qualitative analysis.

**Table 1: Thematic Analysis for R<sub>Q1</sub>**

What is the correlation between RCDE and Menstrual Health management on Academic Achievement among Federal Government Girls College students in Anambra and Delta States?

**H<sub>01</sub>:** There is no significant correlation between RCDE and Menstrual Health Management on Academic Achievement among Federal Government Girls College students in Anambra and Delta States.

Themes	Supporting Quotes from the Respondents
<b>Improved Knowledge</b>	"I learned how to manage my periods better, which made it easier to focus on my schoolwork."
<b>Empowerment &amp; Confidence</b>	"Knowing what to do during my period helped me feel more confident about attending school during menstruation."
<b>H<sub>01</sub> Conclusion</b>	<b>Rejected:</b> There is a positive correlation between RCDE in menstrual health and academic achievement.

**Table 2: Thematic Analysis of R<sub>Q2</sub>**

What is the correlation between RCDE and absenteeism during their menstrual cycles among Federal Government Girls College students in Anambra and Delta States?

**H<sub>02</sub>:** There is no significant correlation between RCDE and absenteeism during menstrual cycles among Federal Government Girls College students in Anambra and Delta States.

Themes	Supporting Quotes from the Respondent
<b>Reduction in Absenteeism</b>	"I don't have to miss school as much now because I know how to manage my period better."
<b>Access to Menstrual Products</b>	"When we were given sanitary pads at school, it made it easier to come to school even during my period."
<b>H<sub>02</sub> Conclusion</b>	<b>Rejected:</b> RCDE has a significant impact on reducing absenteeism.

**Table 3: Thematic Analysis of R<sub>Q3</sub>**



What is the effect of RCDE and low lesson concentration during menstruation among Federal Government Girls College students in Anambra and Delta States?

**H<sub>03</sub>:** There is no significant effect of RCDE and low lesson concentration during lesson among Federal Government Girls College students in Anambra and Delta States.

Themes	Supporting Quotes from the Respondents
<b>Concentration Challenges</b>	“Sometimes the cramps make it hard to focus but the teachers are more understanding now.”
<b>Curriculum Support</b>	“With more flexible deadlines, I can still catch up on lessons even when I don’t feel well during my period.”
<b>H<sub>03</sub> Conclusion</b>	<b>Rejected:</b> RCDE helps mitigate concentration difficulties during menstruation.

**Table 4: Thematic Analysis of R<sub>Q4</sub>**

What is the effect of anxiety and MHM on academic achievement during menstruation among Federal Government Girls College Students in Anambra and Delta States?

**H<sub>04</sub>:** There is no significant effect of anxiety and MHM on academic achievement during menstruation among Federal Government Girls College students in Anambra and Delta States.

Themes	Supporting Quotes from the Respondents
<b>Anxiety Reduction</b>	“Since we started learning about menstrual health, I don’t worry as much during my period.”
<b>Positive Learning Experiences</b>	“Having access to pads and knowing how to manage my period helps me concentrate better in class.”
<b>H<sub>04</sub> Conclusion</b>	<b>Rejected:</b> Anxiety reduction through MHM significantly improves academic achievement.

**Table 5: Thematic Analysis of R<sub>Q5</sub>**

What is the relationship between gender sensitive educational practices and academic achievement during menstruation among Federal Government Girls College students in Anambra and Delta States?

**H<sub>05</sub>:** There is no significant gender sensitive educational practices and academic achievement during menstruation among Federal Government Girls College students in Anambra and Delta States.

Themes	Supporting Quotes
<b>Supportive Environment</b>	“Having a private place to take care of myself makes me more comfortable in school.”
<b>Gender Equity in Learning</b>	“Talking about menstruation openly in class has made it easier for me to focus on my studies.”
<b>H<sub>05</sub> Conclusion</b>	<b>Rejected:</b> Gender-sensitive practices significantly improve academic achievement during menstruation.

## Discussion

The findings from both quantitative and qualitative analyses for R<sub>Q1</sub> and H<sub>01</sub> reveal a significant positive relationship between RCDE and menstrual health on academic achievement. The Pearson’s correlation analysis shows a moderate positive relationship while the thematic analysis highlights that improved knowledge about menstrual health empowers students and increases their confidence in managing menstruation at school. These findings are consistent with studies by Adebayo and Ojo (2020), who assert that MHM significantly improves students' ability to stay focused in school. Ogunkunle and Okwori (2022) also noted that improved menstrual health management correlates with higher academic achievement as students are better able to cope with menstrual challenges while



staying engaged in their education. The integration of menstrual health education into school curricula addresses both academic and personal well-being thereby enhancing girls' academic achievement.

Both the quantitative correlation analysis and the qualitative thematic analysis of  $R_{Q2}$  and  $Ho_2$  affirm that RCDE is strongly associated with reduced absenteeism during menstruation. The data shows that students who receive menstrual health education and have access to sanitary products are less likely to miss school. This is in line with research by Odebiyi and Olatunji (2019) who identified MHM as a key factor in reducing absenteeism among adolescent girls in Nigeria. The provision of sanitary pads and better awareness of how to manage menstruation contribute to a lower absenteeism rate, as supported by Adedoyin and Adetunji (2021). Their study demonstrated that absenteeism due to menstruation can be mitigated by integrating menstrual health education into the curriculum which provides girls with the tools they need to attend school regularly even during their periods.

The linear regression results and qualitative analysis for  $R_{Q3}$  and  $Ho_3$  indicate that RCDE has a significant positive impact on mitigating concentration challenges during menstruation. While some students reported difficulties with concentration due to menstrual discomfort, many acknowledged that curriculum diversification such as flexible deadlines and teacher understanding, helped reduce the impact of these challenges. This finding aligns with the work of Alhassan and Adebayo (2023) who stressed the importance of gender-sensitive educational practices in addressing concentration issues in inclusion of menstrual health education within the curriculum helps to alleviate some of the physical and psychological barriers to learning during menstruation, as also highlighted by Nwafor (2022) who noted that improving menstrual health education in schools has the potential to significantly reduce concentration-related challenges in adolescent girls.

The multiple regression analysis and thematic analysis for  $R_{Q4}$  and  $Ho_4$  confirm that heightened anxiety negatively affects academic achievement but effective MHM practices, provided through RCDE, significantly improve academic outcomes. Students expressed that menstrual health education reduced their anxiety during menstruation, allowing them to concentrate better on their studies. This finding echoes the conclusions of Eze and Ajaegbu (2023), who emphasized the role of school-based health education in reducing menstrual-related anxiety. Similarly, Akinpelu and Adebisi (2020) argued that improving menstrual health education contributes to better learning experiences and higher academic achievement by addressing the psychological challenges that often accompany menstruation. The integration of MHM into school curricula helps reduce anxiety which, in turn, leads to better academic outcomes for students.

The results of both the independent t-test and thematic analysis for  $R_{Q5}$  and  $Ho_5$  demonstrate that gender-sensitive educational practices have a significant positive impact on academic achievement. Students reported feeling more supported and comfortable when schools provided private spaces for menstrual hygiene and openly discussed menstruation in class. This supports the findings of Alhassan and Adebayo (2023) who argued that gender-sensitive approaches to education create a more inclusive and supportive learning environment for girls, particularly during menstruation. By promoting gender equity in the classroom, schools are able to better address the specific needs of menstruating students, improving their academic achievement. Ogunkunle and Okwori (2022) further noted that such practices reduce stigma and enable students to focus on their studies which is crucial for improving academic outcomes.

Across all tables, the combination of quantitative and qualitative analyses underscores the importance of integrating RCDE and gender-sensitive educational practices into school curricula. These interventions not only address the physical challenges of menstruation but also tackle psychological barriers such as anxiety and concentration difficulties significantly improving the academic achievement of adolescent girls in Nigerian schools. Each discussion cites recent studies that support these findings, reinforcing the broader literature on menstrual hygiene management and its role in enhancing girls' education.

## Conclusion

In conclusion, the integration of Restructuring Curriculum Diversification Execution (RCDE) and gender-sensitive educational practices significantly enhances the academic achievement of adolescent girls by addressing the challenges associated with menstruation. Both quantitative and qualitative analyses confirm that improved MHM, reduced absenteeism, alleviated anxiety and higher concentration all contribute to positive academic outcomes. By adopting comprehensive menstrual health education and providing a supportive learning environment, schools can promote gender equity, empower female students and enable them to reach their full academic potential. These findings underscore the need for continued curriculum reforms to accommodate the unique needs of menstruating students in Nigeria.





## Recommendations

Base on the findings it was recommended that:

1. Schools should incorporate comprehensive menstrual health education into their curriculum to improve knowledge and reduce stigma thereby enhancing girls' academic achievement.
2. Federal Government Girl's Colleges should ensure that students have access to free and affordable sanitary products to reduce absenteeism during menstruation.
3. Schools need to adopt gender-sensitive teaching methods that cater for the specific needs of menstruating students to foster a supportive learning environment.
4. Provide better access to sanitary products and creating a supportive school environment through counselling for menstruating students in Federal Government Girl's Colleges in Anambra and Delta States.
5. Teachers should receive training on menstrual health education and its effects on students' learning, allowing them to provide better support to female students.
6. School authorities have to establish support policies that prioritize menstrual health management, including flexible schedules and hygienic products for menstruating students.
7. School administrators and counsellors should organize counselling sessions from time to time to provide a forum for girls to discuss menstrual health issues, reduce stigma, and foster emotional support.
8. School administrators should implement policies that ensure regular health workshops and counselling sessions on menstrual health for both staff and students to promote awareness and reduce misconceptions.
9. School counsellors should collaborate with healthcare professionals to provide ongoing support and education on menstrual health, helping students manage both the physical and emotional impacts of menstruation effectively.

## Educational Implications

The findings of this study highlight significant educational practical implications for RCDE in Federal Government Girl's Schools in Anambra and Delta States (FGGS-ADS). Incorporating Restructuring Curriculum Diversification Execution (RCDE) into school programs, specifically focusing on menstrual health education can enhance students' academic achievement by reducing absenteeism and improving concentration during lessons. Schools implement gender-sensitive practices and provide access to MHM resources to create an inclusive learning environment where female students can thrive academically, regardless of menstruation-related challenges. The integration of these strategies into the curriculum can help break down barriers to education for adolescent girls, reduce gender disparities in educational attainment and promote long-term academic success. Educational stakeholders, including policymakers and school administrators should prioritize such curricular reforms to empower female students and enhance their overall learning experiences.

## Ethical Consideration

This study adhered to strict ethical guidelines to ensure the safety, confidentiality and voluntary participation of all respondents. Approval was obtained from the relevant institutional review boards and school authorities. Informed consent was secured from both students and their guardians and participants were assured of the confidentiality of their responses. All data collected was anonymized to protect the privacy of the students and participants. They were also informed of their right to withdraw from the study at any point without repercussions.

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The research was self-funded with no external financial support or sponsorship. All expenses related to data collection, analysis and publication were covered by the researchers. The absence of external funding helped maintain the objectivity and impartiality of the research findings.

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