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Factors Associated with Early Pregnancy among Adolescent Girls in Schools in Bohicon, Benin in 2022

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Abstract

Introduction: The growing phenomenon of early pregnancies in Benin has adverse consequences on the lives of adolescent girls, impacting various social, health, economic, and educational aspects. This study aims to identify the factors associated with early pregnancies in the municipality of Bohicon in 2022. **Materials and Methods:** This is a case-control study conducted in Bohicon, involving 47 cases and 94 controls from 16 secondary and technical schools. Cases were selected exhaustively, while controls were randomly drawn from girls aged 10 to 19 in the same class who had never been pregnant. Matching was based on the type of institution and class. Data were collected through a questionnaire and analyzed using Epi info 7.2.1.0 and STATA 15 software, employing multiple conditional logistic regression (5% significance threshold) to identify factors related to early pregnancies. **Results:** The average age of adolescents was 17.63 years ± 0.09 for cases and 17.12 years ± 0.13 for controls. Associated factors included age over 16 years (p = 0.049), the marital status of the adolescent (single) (p = 0.001), and the monthly pocket money of the adolescent less than 10,000 FCFA (p = 0.031). **Conclusion:** Three factors related to early pregnancies were identified. To counteract this phenomenon and promote responsible sexuality among adolescents, it is essential to strengthen communication efforts aimed at modifying behaviors.

1. Introduction

Adolescence, according to the World Health Organization (WHO), is a period of human development and growth that falls between childhood and adulthood, between the ages of 10 and 19 [1]. This period brings about major changes in habits, experiences, and self-representations, both for the adolescents themselves and their surroundings. Decisions made impulsively by adolescents, particularly those related to initiating their reproductive life earlier than expected, can lead to early pregnancies during this developmental phase [2]. Early pregnancies are defined as the occurrence of pregnancy in adolescents aged between 10 and 19 years [3]. Every day, according to the United Nations Population Fund (UNFPA), 20,000 girls under the age of 18 give birth in low- and middle-income countries, amounting to a total of 7.3 million births annually [4]. According to the WHO, there are 80 million unintended pregnancies each year, resulting in 45 million induced abortions, leading to 70,000 deaths, 97% of which are recorded in low- and middle-income countries. In these regions, complications related to pregnancy and childbirth are the leading cause of death among adolescents aged 15 to 19, and perinatal mortality increases by approximately 50% among babies of mothers under 20 compared to those of mothers aged 20 to 29 [1]. Moreover, other consequences related to early motherhood in the school environment include depression, stress, dropping out of school, expulsion from both school and the family home, isolation, loss of self-esteem, marginalization, and the perpetuation of the inferior status of women and poverty [4]. Early pregnancies in the school environment therefore constitute a public health issue in low- and middle-income countries, including Benin. In 2016, in Benin, 18.8% of pregnancies were early and unwanted, according to Médecins Du Monde [5]. It is noteworthy that Secondary, Technical, and Vocational Education Institutions in Benin recorded 8,554 cases of pregnancies from 2013 to 2019, revealing a concerning situation. According to statistics from the Departmental Directorate of Secondary, Technical, and Vocational Education over the last five years, 20% of the pregnancies recorded in the Zou department originate from the commune of Bohicon [6]. According to the literature review, factors influencing early pregnancies in the school environment can be classified into five distinct groups, namely environmental, behavioral, sociodemographic, economic, and biological factors. Environmental factors include several aspects such as family type, level of parental control, quality of parent-child communication regarding sexuality, sex education provided by parents, place of residence, and distance between the adolescent's home and school [7]. Sociodemographic and economic factors encompass age, marital status, ethnicity, religion, educational level of the adoles-

cent and her parents, amount of pocket money for the adolescent, and her satisfaction with it. Behavioral factors include age of first sexual intercourse, use of contraceptive methods, self-esteem, number of sexual partners, and the presence of a boyfriend. Finally, the biological factor is linked to puberty [8] [9] [10] [11]. This phenomenon of teenage pregnancies in schools remains largely under-documented in Benin. In order to overcome this shortcoming, the present study was undertaken with the aim of identifying the factors associated with the occurrence of teenage pregnancies in the school environment of the municipality of Bohicon and proposing appropriate corrective actions to reduce this phenomenon. This phenomenon of teenage pregnancies in schools is poorly documented in Benin. To address this gap, the present study was conducted with the aim of better understanding the factors contributing to the occurrence of early pregnancies in the school context of the municipality of Bohicon. The results of this study are intended to enhance strategies for preventing early pregnancies within educational institutions.

2. Materials and Methods

2.1. Study Setting

Bohicon, a commune located in the Zou department, in the southern region of the Republic of Benin, covers an area of 139 km² and had a population of 171,781 in 2013 according to RGPH4. It is situated 130 kilometers away from Cotonou, the national capital. The local population is primarily Fon, representing 91.20% of the total population. Bohicon has 30 secondary institutions, including 10 public, 17 private, and 3 religious schools [12].

2.2. Study Design

This was a case-control study conducted from March 21st to April 2nd, 2022, in secondary and technical institutions in the commune of Bohicon.

2.3. Study Population

Cases included adolescent girls aged 10 to 19, enrolled in a secondary or technical institution in the commune of Bohicon for the 2021-2022 academic year, and who became pregnant during the same school year. As for the inclusion criteria for controls, they encompassed adolescent girls of the same age group and enrolled in the same institutions, but who had never experienced a pregnancy at the time of data collection. Concerning the non-inclusion criteria, they applied to adolescents meeting the inclusion criteria but not providing informed consent, or not obtaining it from their parents (for those under 18) to participate in the study. The exclusion criteria excluded adolescents unable to continue the interview, irrespective of the reason, among both cases and controls.

2.4. Sampling

Matching was done based on the institution and class at a ratio of one case to

two controls. Cases were identified by counting the enrolled adolescent girls for 2021-2022 in secondary or technical institutions in the commune of Bohicon who became pregnant during the school year. For each identified case, two controls were randomly selected from the same institution and class, from the list of all adolescent girls in the same class who had never experienced a pregnancy until the day of data collection.

2.5. Study Variables

The dependent variable was "Early Pregnancies in the School Environment" with the categories "Yes" for cases and "No" for controls. Independent variables included sociodemographic characteristics (age, family type, birth order, marital status, place of residence, educational level, ethnicity, and religion), socioeconomic factors (monthly allowance, existence of a secondary source of income, household socioeconomic well-being level), environmental factors (peer influence, parental control, parent-child communication), biological factors (puberty), and factors related to behavior (age of the adolescent's first sexual intercourse, use of contraceptive methods, self-esteem, number of sexual partners).

2.6. Data Collection Techniques and Tools

Data collection techniques for cases and controls included surveys based on questionnaires designed by the research team, using a structured questionnaire as a tool, pre-tested previously in a secondary school in Abomey, located in the same department as Bohicon in order to verify its reliability and validity.

2.7. Data Analysis

Data analysis was conducted in two stages using Stata 15. First, a descriptive analysis was performed to calculate the proportions or percentages of qualitative variables. Then, the evaluation of the adolescents socioeconomic status was based on a composite indicator of household economic well-being, developed using the Filmer method, considering various household characteristics and assets. This score was then divided into tertiles corresponding to low, medium, and high socioeconomic levels [13]. Parental educational practices were assessed using Claes *et al*.'s scales. "Parental Control" was measured using seven items scored from 1 to 4, with an expected maximum score of 28, a mean score of 17.5, and a minimum score of 7. The quality of parent-child communication was evaluated through five items scored from 1 to 4, with an expected maximum score of 20, a mean score of 12.5, and a minimum score of 5. Sufficiency or insufficiency thresholds were defined based on the mean score [14]. Self-esteem was measured using the Rosenberg scale, comprising ten statements evaluated from 1 to 4. Scores were calculated by adding the scores of statements A1, A2, A4, A6, and A7, while statements A3, A5, A8, A9, and A10 were reverse scored. Expected scores ranged from 10 to 40, and self-esteem was considered low or high based on the median score [15]. Regarding the analysis of data related to "monthly al-

lowance of the adolescent," a threshold of 10,000 CFA Francs was defined based on the distribution of collected data. This simplifying approach was adopted to facilitate analysis and comparisons. The analytical stage included univariate analysis using simple conditional logistic regressions to determine associations between the dependent variable and the independent variables, calculating the odds ratios with a 95% confidence interval [95% CI]. The significance level was set at 5%. Subsequently, multivariate analysis was performed with a multiple conditional logistic regression model to identify factors associated with early pregnancies in the school environment. Variables with a p-value less than 20% in univariate analysis were included in the initial model and then progressively eliminated. The final variables were those with a p-value less than 5%. Model adequacy was evaluated using the Hosmer-Lemeshow test, with reference categories identifying the lowest risk of pregnancy among adolescents.

2.8. Statistical Analysis

Data entry and cleaning were done using Epi info 7.2.1.0 software. Data were analyzed using the STATA 15 software. Univariate analysis was used to describe the sociodemographic characteristics and factors associated with early pregnancies. The Chi-square test was used to compare the proportions between cases and controls, and the Student's test was used to compare the means. Bivariate analysis was used to assess the association between each independent variable and the dependent variable. Variables with a p-value ≤ 0.20 in the bivariate analysis were retained for the multiple conditional logistic regression analysis. The threshold of statistical significance was set at 5%. The results were presented in the form of tables and figures.

2.9. Ethical Considerations

Prior to data collection, we obtained permission from the Departmental Director of Secondary Technical and Vocational Education of Zou, as well as from the directors of the various institutions. All individuals targeted were informed of the study's objectives, and we obtained informed consent from the participants (or their parents for adolescents under 18 years old). To ensure confidentiality, data were collected in a closed room, preserving the anonymity of the respondents by associating each questionnaire with a number.

3. Results

In the commune of Bohicon, a total of 16 institutions out of the 30 existing ones reported at least one pregnancy during the 2021-2022 academic year, leading to their inclusion in the study. Among these institutions, there were ten public, five private, and one religious school, with a total enrollment of 21,892 students in 2021-2022, including 10,647 girls and 11,245 boys. In these 16 institutions, 47 cases were identified, and 94 controls were selected, making a total of 141 adolescent girls included in the study. The mean age of cases and controls was 17.63

± 0.09 and 17.12 ± 0.13, respectively. Out of the 47 early pregnancies recorded, 35 (74.46%) were reported in the upper cycle and 12 (25.54%) in the lower cycle. The Fon ethnic group was the most predominant, representing 93.62% of the cases and 74.47% of the controls. Additionally, the Christian religion was the majority, with a presence of 87.23% among the cases and 88.30% among the controls (see Table 1).

Table 1. Distribution of cases and controls based on sociodemographic characteristics in Bohicon in 2022 (Cases = 47; Controls = 94).

Variables	Cases		Controls	
	Frequency	%	Frequency	%
Ethnics				
Fon	44	93.62	70	74.47
Others	3	6.38	24	25.53
Religion				
Christian	41	87.23	83	88.30
Islam	0	0.00	8	8.51
Traditional religions	6	12.77	3	3.19
Type of family				
Monogamous	25	53.19	47	50
Single-parent	2	4.26	6	6.38
Polygamous	20	42.55	40	42.55
Blended	0	0	1	1.06
Marital status				
Single	26	55.32	82	87.23
Free union	21	44.68	12	12.77
Father's education level				
Unschooled	11	23.40	18	19.15
Elementary	15	31.91	19	20.21
Secondary	12	25.53	36	38.30
University	9	19.15	21	22.34
Mother's education's level				
Unschooled	20	42.55	40	42.55
Elementary	20	42.55	29	30.85
Secondary	6	12.77	20	21.28
University	1	2.13	5	5.32
Residence area				
Urban	30	63.83	66	70.21
Rural	17	36.83	28	29.79

Continued

The person with whom the Early is living				
Both parents	25	53.19	37	39.36
Mother only	7	14.89	16	17.02
Father only	10	21.28	18	19.15
Alone	2	4.26	3	3.19
Tutors	3	6.38	20	21.28

3.1. Socio-Demographic Factors Associated with Early Pregnancy in Schools in the Commune of Bohicon

Table 2 shows the association between sociodemographic variables and the occurrence of early pregnancy. Among the socio-demographic variables, three were significantly associated with early pregnancy. These were age (p = 0.000), ethnicity (p = 0.012) and marital status (p = 0.000).

3.2. Behavioral Factors Associated with Teenage Pregnancy in the Commune of Bohicon

Table 3 presents the association between behavioural factors and the occurrence of teenage pregnancies.

3.3. Socioeconomic Factors Associated with Teenage Pregnancy in the Commune of Bohicon

Table 4 shows the association between socioeconomic variables and the occurrence of early pregnancy. The variable monthly pocket money was significantly associated with early pregnancy (p = 0.020).

3.4. Multivariate Analysis

The multivariate analysis revealed that age, marital status, and pocket money of the adolescent were associated with early pregnancies in the school environment in the commune of Bohicon in 2022 (Table 5).

4. Discussion

4.1. Limitations and Validity of the Study

One of the main challenges encountered during this study was the reluctance of authorities and adolescents, due to the sensitive nature of the subject addressing issues related to sexuality, often perceived as taboo, especially within family environments. Nevertheless, after clarifying the study's objectives and ensuring complete respect for anonymity and confidentiality, the participants finally agreed to collaborate. However, it is important to note that this research could be subject to certain biases, particularly regarding the selection of participants and the accuracy of the collected data. Some witnesses may have provided inaccurate information regarding their pregnancy history, which could introduce

Table 2. Socio-demographic factors associated with early pregnancy in schools in the commune of Bohicon, 2022 (Cases = 47; Controls = 94).

Variables	Cases n (%)	Controls n (%)	OR	IC 95%	p-value
Age of the school girl (year)					
>16	41 (91.49)	89 (84.04)	1.72	1.58 - 1.88	**0.000**
≤16	4 (8.51)	15 (15.96)	1		
Ethnics					
Fon	44 (93.62)	70 (74.47)	0.20	0.06 - 0.7	**0.012**
Others	3 (6.38)	24 (25.53)	1		
Religion					
Christian	41 (87.23)	83 (88.30)	1		
Non Christian	6 (12.77)	11 (11.70)	0.89	0.28 - 2.80	0.845
Type of family					
Monogamous	25 (53.19)	47 (50)	1		
Polygamous	20 (42.55)	40 (42.55)	1.03	0.49 - 2.16	0.927
Others	2 (4.26)	7 (7.45)	1.87	0.35 - 9.81	0.456
Marital status					
Single	26 (55.32)	82 (87.23)	4.57	2.01 - 10.43	**0.000**
Free union	21 (44.68)	12 (12.77)	1		
Father's education level					
Unschooled	11 (23.40)	18 (19.15)	0.70	0.24 - 2.04	0.519
Elementary	15 (31.91)	19 (20.21)	0.48	0.16 - 1.43	0.190
Secondary	12 (25.53)	36 (38.30)	1.27	0.48 - 3.40	0.632
University	9 (19.15)	21 (22.34)	1		
Mother's education's level					
Unschooled	20 (42.55)	40 (42.55)	0.48	0.04 - 5.40	0.555
Elementary	20 (42.55)	29 (30.85)	0.34	0.03 - 3.24	0.346
Secondary	6 (12.77)	20 (21.28)	0.80	0.06 - 10.17	0.867
University	1 (2.13)	5 (5.32)	1		
Residence area					
Urban	30 (63.83)	66 (70.21)	1		
Rural	17 (36.17)	28 (29.79)	0.57	0.20 - 1.61	0.293
The person with whom the Early is living					
Father only	10 (21.28)	18 (19.15)	1.11	0.35 - 3.59	0.857
Mother only	7 (14.89)	16 (1.52)	1.52	0.47 - 4.93	0.483
Both parents	25 (53.19)	37 (39.36)	1		
Tutors	3 (6.38)	20 (21.28)	6.18	1.29 - 29.65	0.023
Alone	2 (4.26)	3 (3.19)	0.92	0.12 - 6.97	0.939

Table 3. Behavioral factors associated with early pregnancies among adolescents in the municipality of Bohicon, 2022 (Cases = 47; Controls = 94).

Variables	Cases	Controls	OR	IC 95%	p-values
	n (%)	n (%)			
Mobile phone usage					
Yes	23 (48.90)	35 (37.20)	1		
No	24 (51.10)	59 (62.80)	0.40	0.14 - 1.12	0.081
Cell phone donor					
Your boyfriend	15 (65.20)	11 (33.30)	0.49	0.07 - 3.52	0.478
Your parents	6 (26.10)	19 (57.60)	5.67	0.45 - 72.10	0.181
Yourself	2 (8.70)	3 (9.09)	1		
Early sexual intercourse					
No	18 (38.30)	37 (39.40)	1		
Yes	29 (61.70)	57 (60.60)	0,96	0.48 - 1.92	0.906
Age of sexual partners	22.30 ± 0.66	22.41 ± 0.55	1,03	0.90 - 1.18	0.62
Partners' profession					
Unemployed	5 (18.50)	5 (8.90)	0,67	0.14 - 3.10	0.608
Employed	22 (81.50)	51 (91.10)	1		
Importance of the relationship					
Passenger	3 (11.1)	6 (10.70)	1,12	0.25 - 5.12	0.876
Serious without intention of marriage	3 (11.1)	8 (14.30)	1,44	0.34 - 6.27	0.623
Important with intention of marriage	21 (77.8)	42 (75)	1		
Knowledge about teenage pregnancies					
STIs	23 (48.90)	37 (39.40)	1		
Depression	3 (6.38)	6 (6.38)	1.28	0.28 - 5.66	0.747
Dropping out of school	13 (27.70)	41 (43.60)	1.72	0.81 - 3.67	0.160
Marginalization	1 (2.13)	2 (2.13)	1.27	0.11 - 14.18	0.848
Maternal mortality related to pregnancy	7 (14.90)	8 (8.51)	0.65	0.18 - 2.28	0.497
Use of contraceptive methods					
Yes	18 (62.10)	17 (29.20)	0.87	0.24 - 3.12	0.827
No	11 (37.90)	40 (70.20)	1		
Self-esteem					
Low	21 (44.70)	48 (51.10)	1.19	0.37 - 3.80	0.769
High	26 (55.30)	46 (48.90)	1		

Table 4. Socioeconomic factors associated with early pregnancy in schools in the commune of Bohicon, 2022 (Cases = 47; Controls = 94).

Variables	Cases n (%)	Controls n (%)	OR	IC 95%	p-value
Pocket money (CFA Francs)					
<10,000	34 (72.34)	82 (87.23)	4	1.24 - 12.87	**0.020**
>10,000	13 (27.66)	12 (12.77)	1		
Allowance satisfaction					
No	19 (40.43)	47 (50)	1.47	0.72 - 3.02	0.284
Yes	28 (59.57)	47 (50)	1		
Existence of another source of income					
No	33 (70.21)	69 (73.40)	1		
Yes	14 (29.79)	25 (26.60)	0.85	0.40 - 1.83	0.694
Father's occupation					
Farmer	7 (14.89)	14 (14.89)	1.19	0.39 - 3.60	0.759
Artisan	14 (29.79)	22 (23.40)	0.91	0.37 - 2.23	0.842
Driver	5 (10.64)	11 (11.70)	1.16	0.33 - 4.06	0.809
Official	14 (29.79)	24 (25.53)	1		
Reseller	2 (4.26)	11 (11.70)	3.27	0.64 - 16.61	0.152
Teacher	4 (8.51)	5 (5.32)	0.66	0.16 - 2.69	0.568
Other	1 (2.13)	7 (7.45)	4.34	0.50 - 37.61	0.182
Mother's occupation					
Artisan	7 (14.89)	10 (10.64)	1		
Reseller	39 (82.98)	67 (71.28)	1.27	0.34 - 4.79	0.722
Other	1 (2.13)	17 (18.09)	14.19	1.35 - 148.91	0.027
Household's level of socio-economic well-being					
Low	20 (42.55)	39 (41.49)	1.14	0.42 - 3.04	0.796
Medium	11 (23.40)	26 (27.66)	1.34	0.49 - 3.69	0.569
High	16 (34.04)	29 (30.85)	1		

Table 5. Final Multivariate Model of Factors Associated with Early Pregnancies among School-Going Adolescents in the Bohicon Commune in 2022.

Variable	Cases n (%)	Controls n (%)	OR Adjusted	IC 95%	p-value
Age of the school girl (year)					
>16	41 (91.49)	89 (84.04)	1.72	1.58 - 1.88	0.049
≤16	4 (8.51)	15 (15.96)	1		

Continued

Pocket Money (CFA Franc)					
≤10,000	34 (72.34)	82 (87.23)	5.56	1.17 - 26.59	0.031
>10,000	13 (27.66)	12 (12.77)	1		
Marital status					
Single	26 (55.30)	82 (87.20)	4.55	1.63 - 12.76	0.001
Free Union	21 (44.70)	12 (12.80)	1		

selection bias. Additionally, information biases may be related, on one hand, to the sensitivity of the topics discussed (such as pregnancy and the sexual life of the interviewees) and, on the other hand, to the capacity for memory retention. Memory biases could be associated with questions regarding certain aspects such as the age of first sexual experience and the date of the last menstrual period. To mitigate these biases, preventive measures such as establishing a climate of trust and preserving the anonymity of responses were put in place. Despite these limitations, we believe that the conclusions of this study provide valuable insights to combat early pregnancies in schools in Benin.

4.2. Sociodemographic Characteristics

Our observations on the mean age of cases and controls reveal interesting trends, which seem to be consistent with what has been previously documented in research conducted in similar geographical contexts. For example, a study conducted in Bamako in 2022 by Samaké and colleagues also revealed striking similarities regarding the average ages. They reported an average age of 17.4 years ± 1.2 for cases and 23.19 years ± 3.1 for controls [16]. Similarly, a study dating back to 2015, conducted by Glèlè *et al.* among adolescents living in the community in Lokossa, indicated a similar average age of 17.75 years ± 3.1 years [17]. Lastly, Mongbo *et al.*, in a study conducted in Benin in 2018, obtained similar results, with an average age of 17.86 years. It is essential to note that out of the 47 early pregnancies recorded, 35 (74.46%) were reported in the upper cycle and 12 (25.54%) in the lower cycle. This trend could be attributed to the fact that senior adolescents, being closer to the end of their school career, may have fewer concerns about the potential impact of early pregnancy on their education. At the end of the cycle, they may be more willing to take risks in sexual behavior because they feel closer to adulthood and the end of their schooling. In addition, social or family pressures linked to academic success may be less restrictive for students at the end of the cycle, which can influence their behavior.

4.3. Age at First Sexual Intercourse

According to the findings of this study, the median age at first sexual intercourse was found to be 17 years for both cases and controls. This finding is consistent with the findings of Mongbo *et al.* as well as those of Abdourahamane *et al.*, who

reported an average age of 16 years in their respective studies conducted in Benin and Guinea [10] [18]. This similarity suggests a common trend that may be influenced by cultural and social norms. The age of 17 for the onset of sexual intercourse appears to indicate a critical transition to adulthood, often associated with the end of the schooling period. In many societies, cultural and social norms strongly surround the sexuality of young people, often imposing strict expectations regarding sexual behavior before a certain age. This social pressure can lead adolescents to postpone sexual initiation until they reach a certain stage of their education or personal development. However, once this critical period has passed, young people may feel freer to explore their sexuality and engage in intimate relationships. Social pressures related to academic achievement or family expectations can also play a significant role in this dynamic. For example, as young people approach the end of their schooling, they may feel less constrained to maintain strict sexual abstinence, which may explain the similarity observed in the median age of first sexual intercourse between cases and controls.

4.4. Age and Early Pregnancy

It was found that reaching the age of 16 or older among adolescent girls in the school environment increases the risk of early pregnancy in the commune of Bohicon by 1.72 times. At the age of 16, adolescents often enter a transition phase marked by a growing desire for independence and an exploration of their identity. This period generally corresponds to when young girls seek to better understand themselves, gain autonomy, and identify with the lifestyles of their peers. At this age, sexual characteristics develop, making them very attractive to young men. In many contexts, this period coincides with the time when young girls begin to express their sexuality and engage in romantic relationships. Similar findings were highlighted by Sidibé *et al.* in Guinea Conakry, who noted a significant increase in the risk of early pregnancy associated with the age of the adolescents [9].

4.5. Marital Status and Early Pregnancy

Unmarried adolescent girls included in this study had a higher risk of early pregnancy compared to those in free union. However, research conducted by Ayele *et al.* in northern Ethiopia, focusing on risk factors for early pregnancies, revealed that married adolescents were more likely to be pregnant than their unmarried counterparts (CI = 7.43 - 34.04) [19]. This disparity could be explained by the fact that early marriage is a widespread cultural phenomenon in Ethiopia, affecting nearly half of the adolescents [20], whereas it is less common in Benin [21]. In many societies, early marriage is deeply rooted in cultural and social norms, and in Ethiopia in particular, it is widespread, affecting a considerable percentage of adolescent girls. The socio-cultural pressures that encourage early marriage can influence the dynamics of sexual relationships among married girls, prompting them to adopt more cautious behaviors and potentially

restrict the number of sexual partners. In contrast, in Benin, where early marriage is less common, adolescent girls in common-law relationships may be less inclined to conform to the strict norms associated with a formal partnership, potentially exposing them to riskier behavioral situations, such as relationships with multiple sexual partners. Complex socio-cultural dynamics and contextual pressures may also influence individual perceptions of sexuality and romantic relationships, modulating the sexual and reproductive behaviors of adolescent girls in these different contexts.

4.6. Pocket Money and Early Pregnancy

The results of this study show that adolescent girls with low monthly income have an increased risk of early pregnancy in the commune of Bohicon. This finding is consistent with that of Ayele *et al.*, who also found an association between the low socioeconomic level of adolescents in terms of pocket money and the occurrence of pregnancies in the school environment [18].

Indeed, the economic pressures faced by adolescent girls, particularly those from disadvantaged backgrounds, can exert a significant influence on their relationship decisions and behaviors. The daily struggle to meet their basic needs can make adolescent girls vulnerable to offers of financial or material support from potential partners, even if these offers come with Frequency. Gifts and financial incentives can represent a form of security or comfort for these girls, temporarily alleviating the economic difficulties they face. In such circumstances, teenage girls may be more inclined to accept advances or enter into intimate relationships without the necessary precautions, exposing them to an increased risk of unwanted pregnancy. Economic insecurity can also limit their access to reproductive health information and services, depriving them of adequate education on contraception and safe sex practices. These precarious socio-economic conditions create an environment conducive to adolescent vulnerability, exposing them to situations where their choices are often influenced by immediate subsistence considerations rather than long-term planning.

5. Conclusion

In 2022, in Bohicon, this study revealed that age, marital status, and monthly income were linked to early pregnancies among school-going adolescents. To address this issue, it is crucial to strengthen prevention at the community level, coordinate actions involving various stakeholders, including administrative and community authorities, local development structures, adolescents, and NGOs dedicated to adolescent health.

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Conflicts of Interest

The authors declare no conflicts of interest regarding the publication of this paper.

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Appendices

Questionnaire to be administered to adolescent girls.

1-Form Number

2-Date of Survey   ---------/-----------/----------------

Identification of the School:

3-Name of the District

1. Gnidjazoun
2. Avogbana
3. Sodohomè
4. Saclo
5. Ouassaho
6. Agongointo
7. Lissèzoun
8. Bohicon I
9. Bohicon II
10. Passagnon

4-Name of the School

1-CEG1
2-CEG2   10-LYTEB
3-CEG3   11-Hélios
4-CEG4   12-St thomas
5-CEG5   d'Acquin   16-Providence IKM
6-CEG6   13-Trinité   17-CEG Passagon
7-CEG Avogbanan   14-JJ Rousseau
8-CEG Gnidjazoun   15-Triomphe du Roi
9-CEG Saclo

5-Respondent

1-Case
2-Control

Sociodemographic Characteristics

6-How old are you?   [   ]   Years

7-What type of family do you live in?

1. Monogamous (father + one wife)
2. Polygamous (father with multiple wives)
3. Blended (one biological parent + one guardian)
4. Single-parent (only one parent)
5-Other, please specify...
………….

8-What is your birth order in your siblings?

1. First
2. Second
3. Third
4. Other, please specify …………….

9-What is your marital status?

1. Single
2. Common-law (living together without marriage)
3. Traditional marriage

10-What is your father's level of education?

1. No education
2. Primary level
3. Secondary level
4. Higher education

Continued

11-What is your mother's level of education?	1. No education 2. Primary level 3. Secondary level 4. Higher education
12-What is your current level of education?	1. 6th grade 2. 5th grade 3. 4th grade 4. 3rd grade 5. 2nd grade 6. 1st grade 7. Senior year (Tle)
13-In which area do you reside?	1- Bohicon I 2- Bohicon II 3- Gnidjazoun 4- Avogbana 5- Sodohomè 6- Saclo 7- Ouassaho 8- Agongointo 9- Lissèzoun 10- Passagnon 11- Other, please specify...
14-Who do you live with?	1. Father only 2. Mother only 3. Both parents 4. Guardians 5. Alone
15-Which of your parents is still alive?	1. Father 2. Mother 3. Both parents 4. None

Sociocultural Characteristics

16-What is your ethnicity?	1. Fon 2. Yoruba 3. Adja 4. Other, please specify...
17-What is your religion?	1. Christianity 2. Islam 3. Indigenous religions 4. Other, please specify...

Biological Characteristics

18-Have you already had your first menstruation?	1. Yes 2. No
19-At what age did you have your first menstruation?	⬜ ans
20-What is the date of your last menstruation?	------/-----------/-----------

Continued

Socioeconomic Characteristics

21-What is your father's occupation?	1. Farmer 2. Artisan 3. Driver 4. Civil servant 5. Vendor 6. Teacher 7. Other, please specify...
22-What is your mother's occupation?	1. Farmer 2. Craftswoman 3. Vendor 4. Civil servant 5. Teacher 6. Unemployed 7. Other, please specify...
23-How much is your monthly allowance?	[ ] FCFA
24-Is this amount sufficient for you?	1. Yes 2. No
25-Who provides you with this money?	1. Parents 2. Your boyfriend 3. Your teachers 4. Other, please specify
26-Do you have another source of income?	1. Yes 2. No
27-If yes, please specify.	1. Parents 2. Your boyfriend 3. Your teachers 4. Income-generating activities 5. Other, please specify... ....
28-Do you own a personal mobile phone?	1. Yes 2. No
29-If yes, who gave it to you?	1- Your boyfriend 2- Your parents (Father and Mother) 3- Yourself 4- Other, please specify...

30-Socioeconomic well-being assessment scale of the household to which the adolescent belongs:

a. Are you a tenant or a homeowner of the house?	0 = Tenant 1 = Owner
b. Do you have land or a property?	0 = No 1 = Yes
c. What is your source of lighting?	0 = Oil lamp 1 = Battery-powered lamp 2 = Electric power
d. What is your source of cooking energy?	0 = Wood 1 = Charcoal 2 = Kerosene stove 3 = Gas 4 = Electricity

Continued

e. What is your means of information?	0 = None 1 = Radio 2 = Television 3 = Both
f. What is your means of communication?	0 = None 1 = Landline phone 2 = Mobile phone 3 = Internet
g. What is your means of transportation?	0 = None 1 = Bicycle 2 = Motorcycle 3 = Car
h. What is your source of water supply?	0 = Well and others (including ponds...) 1 = Pump (Soneb or drilled)
i. How is the floor material of your house?	0 = Sand 1 = Cement 2 = Tiles
j. What type of toilet do you use?	0 = None 1 = Shared 2 = Private traditional 3 = Indoor sanitation
k. What is the roof material of your house?	1 = Straw 2 = Sheet metal 3 = Tile 4 = Slab
l. What materials is your house constructed from?	1 = Bamboo 2 = Adobe (terracotta) 3 = Cement

Total

Characteristics Related to the Adolescent's Social Environment

31-What is the distance between your home and your school (approximately in kilometers)? Km	[ ] Km
32-How do you find this distance?	1 = Close 2 = Average 3 = Far
33-Who takes you to school?	1 = Parents 2 = Yourself 3 = Others
34-By what means?	1 = On foot 2 = Bicycle 3 = Car 4 = Motorcycle taxi
35-Who do you most often receive advice on sexuality from?	1 = Siblings 2 = Guardians 3 = Friends/classmates 4 = Teachers 5 = Boyfriend 6 = Other, please specify... 7 = No one

Continued

36-If yes, what kind of advice do they give you?	1 = The importance of preserving virginity until marriage 2 = The benefits of sex for health 3 = The necessity of having a boyfriend 4 = Other, please specify
37-Does anyone in your surroundings advise you to get pregnant?	1 = Yes 2 = No
38-If yes, who?	1 = Biological parents 2 = Siblings 3 = Guardians 4 = Friends/classmates 5 = Teachers 6 = Boyfriend 7 = Other, please specify... 8 = No one

39-Parent-Child Communication Assessment Scale

a. Does your mother, father, or guardian take the time to talk to you alone?	1 = Not at all	2= Sometimes	3= Often	4= Always
b. Do you talk to your mother, father, or guardian about things that are important to you?	1 = Not at all	2= Sometimes	3= Often	4= Always
c. Do you talk to your mother, father, or guardian about your feelings and romantic relationships without fear or embarrassment?	1 = Not at all	2= Sometimes	3= Often	4= Always
d. Do you discuss issues related to sexuality with your mother, father, or guardian?	1 = Not at all	2= Sometimes	3= Often	4= Always
e. When you have difficulties or emotional/financial problems, do you receive support from your parents?	1 = Not at all	2= Sometimes	3= Often	4= Always

Total

40-Parental Control Quality Assessment Scale

a. Does your mother/father or guardian set rules and expect you to follow them?	1 = Not at all	2= Sometimes	3= Often	4= Always
b. Does your mother/father or guardian know how you behave at school?	1 = Not at all	2= Sometimes	3= Often	4= Always
c. Does your mother/father or guardian want you to do your schoolwork every day?	1 = Not at all	2= Sometimes	3= Often	4= Always
d. Do you need permission from your mother/father to go out in the evening during school days?	1 = Not at all	2= Sometimes	3= Often	4= Always
e. When you go out late, do you have to tell your mother/father with whom you are going?	1 = Not at all	2= Sometimes	3= Often	4= Always
f. Do you need to ask your mother/father for permission before planning to go out with your friends on weekends?	1 = Not at all	2= Sometimes	3= Often	4= Always
g. When you stay out late, does your mother/father want you to call?	1 = Not at all	2= Sometimes	3= Often	4= Always

Total

Continued

Behavioral Characteristics

41-Have you ever had sexual intercourse at least once in your life?	1 = Yes 2 = No

If no, proceed to question 49 and continue with question 53.

42-At what age did you have your first sexual intercourse?

☐ years

43-Do you have a boyfriend (sexual partner)?

1 = Yes
2 = No

44-If yes, how many?

45-If yes, please indicate their age.

P1 : ☐   P2 : ☐   P3 : ☐
(Scale)

P1
1-Student
2-Student
3-Teacher
4-Craftsman
5-Shopkeeper
6-Unemployed
7-Other to specify

P2
1-Student
2-Student
3-Teacher
4-Craftsman
5-Shopkeeper
6-Unemployed
7-Other to specify

46-What is their profession?

P3
1-Student
2-Student
3-Teacher
4-Craftsman
5-Shopkeeper
6-Unemployed
7-Other to specify

P1
1-Transient
2-Serious with no intention of marriage
3-Serious with intention of marriage

P2

47-How would you describe your relationship with your partner(s)?

1-Passing
2-Serious with no intention of marriage
3-Important with intention of marriage

P3
1-Passing
2-Serious with no intention of marriage
3-Important with intention of marriage

Continued

48-In your opinion, what could be the consequences of a pregnancy that occurs in a student under 19 years old?	1 = Sexually transmitted infections 2 = Depression 3 = School dropout 4 = Marginalization 5 = Maternal mortality related to pregnancy 6 = Other, please specify...
49-Do you use contraception? If no, proceed to question 52.	1 = Yes 2 = No
50-If yes, which method do you use?	1 = Condom 2 = Birth control pills 3 = Intrauterine device (IUD) 4 = Jadelle (forearm implants) 5 = Injectable contraceptives (every 3 months) 6 = Vasectomy 7 = Spermicide 8 = Other 9 = Traditional methods
51-If no, please explain why.	1 = Lack of financial means 2 = Belief that contraceptives cause infertility 3 = Belief that contraceptives cause obesity 4 = Parental prohibition 5 = Partner's prohibition 6 = Religious prohibition 7 = Lack of knowledge of where to obtain contraceptives 8 = Other, please specify...
52-Do you receive sex education at school?	1-Yes 2-No
53-Do your parents/guardians educate you about sexuality at home?	1-Yes 2-No

54- Rosenberg's Self-Esteem Evaluation Scale				
Item	1 = Strongly disagree	2 = Somewhat disagree	3 = Somewhat agree	4 = Strongly agree
a. You believe you are a person of worth, at least on an equal basis with others.				
b. You feel you have a number of good qualities.				
c. All in all, you are inclined to feel that you are a failure.				
d. You are able to do things as well as most other people.				
e. You feel little reason to be proud of yourself.				
f. You have a positive attitude toward yourself.				
g. Overall, you are satisfied with yourself.				
h. You wish you had more respect for yourself.				

Continued

i. Sometimes you feel useless.

j. You occasionally think you are a worthless person.

Total

55-Make a choice between:	1-Continue your education 2-Start an income-generating activity 3-Learn a trade