Original Research Article

Dysmenorrhea and associated risk factors among adolescent girls in Junior High School of Upper East region, Ghana

ABSTRACT

Aim: The aim of the study was to determine the prevalence of dysmenorrhea and associated risk factors among adolescent girls in junior high schools of the Upper East region in Ghana.
Study design: A descriptive cross-sectional study design was adopted.
Place and duration of study: The study was carried out in five (5) districts; Bolgatanga, Bongo, Builsa, Talensi and Nabdam in the Upper East region of Ghana, between February to June 2018.
Methodology: Simple random sampling was used to collect data from 400 participants in 14 junior high schools of the five districts using self-administered questionnaire. Likert Scale (LS) was used to rate the severity of dysmenorrhea. Data was analysed using GraphPad prism version 6.0. Categorical data compared using chi-square test, risk factors assessed using binary logistic regression analysis and p-value < 0.05 considered statistically significant.
Results: The prevalence of dysmenorrhea was 85%. About 77.8% of respondents with dysmenorrhea had their first menstruation between the ages 9-11 years. Among those who had dysmenorrhea, 46.8% experienced mild menstrual pain while 11.0% experienced severe pain. Factors that were identified as predictors of risk factors for dysmenorrhea were; menarche between the age 9-11years (aOR = 1.92, 95% CI = 1.053-3.495), short (<21 days) menstrual cyclic length (aOR = 1.98, 95% CI = 1.021-3.578) and short (<2 days) menstruation days (aOR = 2.55, 95% CI = 1.385-4.617).
Conclusion: Dysmenorrhea prevalence is high and the risk factors are; girls who had first menstruation between the ages of 9-11years, those who experience short (<21 days) menstrual cyclic length and short (<2 days) menstrual days. Further work, however, is encourage to validate the reliability of these risk factors of dysmenorrhea.

Keywords: dysmenorrhea, adolescent, gynaecology, junior high school, Ghana

1. INTRODUCTION

Menstruation is a common physiological change experienced by adolescent girls of which the first of its kind is called menarche. This monthly period is often associated with problems of irregular menstrual flow, profuse bleeding and dysmenorrhea. Dysmenorrhea is a painful or cramping feeling experienced in the lower abdomen during menstruation with headache, nausea, dizziness, vomiting, diarrhoea, breast tenderness, backache and leg pain being the signs and symptoms [1-3].

Dysmenorrhea is the most common gynaecologic complaint among adolescent girls [4, 5] and it can be primary or secondary. Primary dysmenorrhea is pain experienced during menstruation with normal pelvic pathology while secondary dysmenorrhea is associated with

pelvic pathology with common causes reported being pelvic inflammatory disease, endometriosis and ovarian cysts [6].

High prevalence dysmenorrhea has been reported in some studies in Ghana as 83.6% in Tamale [7] and 74.4% in Accra [8]. In Africa, dysmenorrhea was also reported as 66.2% in Nigeria [9], 78.35% in Benin [10], 80.1% in Egypt [11], and in India as 76% in Manipur [12], 79.7% in Gwalior [13] and 84% [14]. However, a much lower (25% - 50%) prevalence was reported by Harlow and Campbell (15). Risk factors associated with dysmenorrhea reported by several studies include; excessive bleeding, short menstrual cyclic length, family history of dysmenorrhea, depression and smoking [10, 12, 16-18].

Most females with dysmenorrhea experienced some level of pain and distress and this affects their daily activities including work schedules. In the United States, it was reported that, dysmenorrhea is the leading cause of periodic short-term school absenteeism among adolescent girls. About 70% adolescent girls reported regular school absenteeism in Tbilisi (Georgia) due to severity of menstrual pain [19]. Girls who experience painful menstruation had poor interpersonal relationships with family and friends, reduced daily physical activity and poor examination grades due to decreased class concentration [12, 20, 21].

In spite of the effects of dysmenorrhea on adolescent girls, few seek medical treatment [10, 20, 22]. Most girls and their parents, especially mothers, accept dysmenorrhea as a normal feature of the menstrual cycle due to lack of adequate information and the cultural myth (silence) that is associated with it. The pain and trauma related to menstruation go unexpressed and the adolescent girls suffer as a result. Previous studies conducted on dysmenorrhea among adolescent girls was carried out in Accra, the southern part of Ghana. The objective of the study is to determine the prevalence of dysmenorrhea and associated risk factors, information on awareness and how it is managed among adolescent girls in Junior High Schools of the Upper East region, the northern part of Ghana.

2.0 MATERIAL AND METHODS

2.1 Study area

The study was carried out in five (5) districts; Bolgatanga (number of participants = 152), Bongo (number of participants = 100), Builsa (number of participants = 49), Talensi (number of participants = 71) and Nabdam (number of participants = 28) in the Upper East region of Ghana, between February to June 2018. The Upper East region is one of the 16 regions of Ghana located in the northern part with its regional capital being Bolgatanga. This region houses diverse ethnic populations who speak different dialects and practice the three (3) main religions: Christianity, Traditional, and Islam.

2.2 Study design

The study was a descriptive cross-sectional study among adolescent girls in Junior High School in the Upper East region of Ghana. The schools involved were; Fountain Gate International School, Kumbosco, Golden Step, Nadengzieg in Bolgatanga; Beo Roman Catholic (R/C), Sapporo, St. Luke in Bongo; Ayieta, Success International School in Builsa; Sakorit, Kpatia, Kolpellega in Talensi; Dasabligo and Kongo in Nabdam district.

2.3 Ethical consideration

Ethical clearance was sought from the Ethical review board of the School of Allied Health Sciences, University for Development Studies and Upper East Regional Directorate of Ghana Education Service. A consent was sought from the school authorities, parents as well as each participant before included in the study. Subjects who did not give their consent were excluded from the study.

2.4 Study population

The target population were girls between the ages 11 - 19 years. Girls who had not seen their menstrual period for the last 6 months, refused to consent/take part in the study and those who were absent during our visit were all excluded from the study.

2.5 Sample size calculation

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The sample size was calculated using the Cochran [23] formula. The sample size was, therefore, calculated from the expression:

$$n = \frac{Z^2(1-p)p}{e^2}$$

Where
n = minimum sample size
Z = abscissa off the normal curve that cuts off an area α at the tails (1 – α equals the desired confidence level, ie 95%).
e = margin of error at 5% (standard value of 0.05).
p = prevalence of dysmenorrhea among adolescent in Accra, Ghana is 74.4% [8].
Using the information in the formula above, the sample size for this study was 293 persons. Given a targeted response rate of 90%, the sample size was recalculated as 293/0.90. Using the above formula, the calculated sample size was approximately 326. However, 400 girls were targeted and recruited to participate in the study.

2.6 Sampling technique

A simple random sampling technique of balloting was used to select fourteen (14) schools out of 43 junior high schools in the region. In each school, questionnaires were randomly distributed to participants who met the sampling criteria.

2.7.0 Data collection

Data was collected using self-administered questionnaire. The questionnaires were developed to cover socio-demographic characteristics, history of menstruation, severity of dysmenorrhea, physical activity levels, treatment-seeking practice and quality of life related to dysmenorrhea such as mood, emotion, concentration and school attendance.
Dysmenorrhea was defined as painful menstruation experienced by an adolescent within the past 6 months.
Likert Scale (LS) was adopted to rate the severity of dysmenorrhea using the Cronbach's α coefficient (α = 0.94) (Mcdowell, 1996). A zero (0) score on the scale represented no pain at all whiles ten (10) represented severe/unbearable pain. Participants were required to rate the degree of pain by ticking the number. The following were the classification of score received; mild dysmenorrhea: 1-3, moderate dysmenorrhea: 4-7 and severe dysmenorrhea: 8-10.
Regular physical activity was measured as individual involving in outdoor physical activity for 30 minutes or longer each day for at least 4 times a week.
2.7.1 Pre-testing of questionnaires: In order to clear all uncertainties and any ambiguity, 10 questionnaires were pre-tested among adolescent girls at Bolgatanga Roman Catholic (R/C) junior high school in order to change the instructions that were not clear to the participants.
2.7.2 Administering of questionnaires: The questionnaire was administered to each participant for data collection. Response from the questionnaires that were pre-tested were not included in the finalized data that was analyze for the study.

2.7 Statistical analysis

Data were analyzed using Microsoft Excel 2013 and GraphPad prism version 6.0 (www.graphpad.com). Data were presented as frequency, percentages and charts. Categorical variables were compared using chi-square test. Bivariate and multivariate logistic regression analysis were used to assess risk factors associated with dysmenorrhea and in all cases a p- value < 0.05 was considered statistically significant.

3.0 RESULTS

3.1 Socio-demographic characteristics of study participants

A total of 400 adolescent girls participated in the study. Majority of the respondents (63.0%) were in 14-16years age category compared with other age categories, while the age category 17-19 years had the least number of respondents (12.5%). A majority (79.5%) of

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the respondents were Christians, in JHS 1 (35.5%) and about 38.0% reside in Bolgatanga in the Upper East Region of Ghana (Table 1).

Table 1. Socio-demographic characteristics of study participants

Variable	Frequency (n = 400)	Percent (%)
Age (years)		
11-13	98	24.5
14-16	252	63.0
17-19	50	12.5
Educational level		
JHS/Form 1	142	35.5
JHS/Form 2	135	33.7
JHS/Form 3	123	30.8
Religion		
Christian	318	79.5
Islam	77	19.3
Traditional	5	1.2
District		
Bolga	152	38.0
Bongo	100	25.0
Builsa	49	12.3
Nabdam	28	7.0
Talensi	71	17.7

Data presented as frequency and percent

3.2 Distribution of dysmenorrheics by severity of dysmenorrhea

The prevalence of dysmenorrhea was 85%. Among those who had dysmenorrhea, 46.8% experienced mild menstrual pain while 11.0% experienced severe pain (Figure 1).

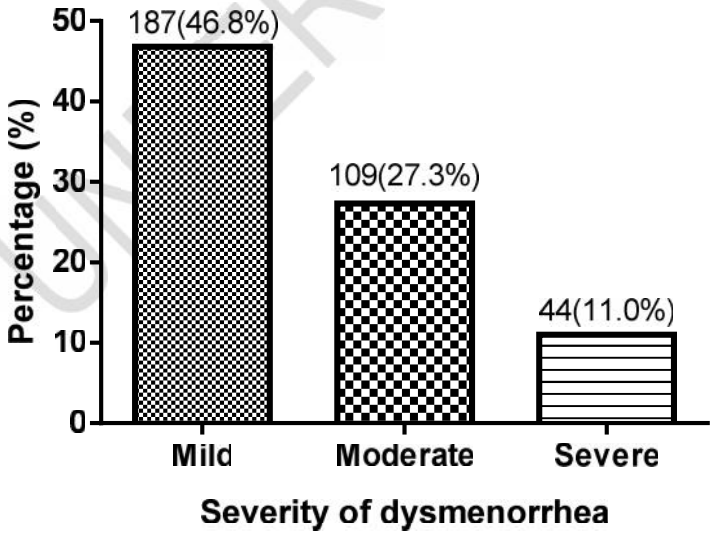

Figure 1: Distribution of dysmenorrheics [24] by severity of dysmenorrhea

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3.3 Percentage distribution of dysmenorrhea severity and quality of life

Majority of the study participants with dysmenorrhea responded that, interpersonal relationship with family and friends (75.9%) were affected due to painful menstruation. A total of 58.5% were depressed, 28.8% emotionally unstable and 14.7% absenting themselves from school during dysmenorrhea state. As the degree of painful menstruation increases from mild to severe, these variables (relationship with family and friends, daily physical activity, concentration during class hours, depression mood and emotional instability) increase.

About one-seventh (14.7%) of girls with dysmenorrhea had been absent from school for at least 1 day due to painful menstruation in the past 6 months and absenteeism increases with increase in severity of dysmenorrhea (Table 2).

Table 2: Percentage distribution of dysmenorrhea severity and quality of life

Variable	Total, n=340(%)	Mild, n=187(%)	Moderate, n=109(%)	Severe, n=44(%)
Interpersonal relationship				
Affected	258 (75.9)	137 (73.3)	85 (78.0)	36 (81.8)
Not affected	82 (24.1)	50 (26.7)	24 (22.0)	8 (18.2)
Depressed mode				
Affected	199 (58.5)	109 (58.3)	64 (58.7)	26 (59.1)
Not affected	141 (41.5)	78 (41.7)	45 (41.3)	18 (40.9)
Daily physical activity				
Affected	96 (28.2)	46 (24.6)	34 (31.2)	16 (36.4)
Not affected	117 (34.4)	141 (75.4)	75 (68.8)	28 (63.6)
Reduced concentration				
Affected	111 (32.6)	61 (32.6)	38 (34.9)	16 (36.4)
Not affected	229 (67.4)	126 (67.4)	71 (65.1)	28 (63.6)
School absenteeism				
Yes	50 (14.7)	27 (14.4)	16 (14.7)	7 (15.9)
No	290 (85.3)	160 (85.6)	93 (85.3)	37 (84.1)
Emotional instability				
Yes	98 (28.8)	50 (26.7)	31 (28.4)	17 (38.6)
No	242 (71.2)	137 (73.3)	78 (71.6)	27 (61.4)

Data presented as frequency (percent)

3.4 Information on Awareness

The prevalence of dysmenorrhea awareness was 92.0%. Among those who were aware of dysmenorrhea, 85.6% had experienced dysmenorrhea at least once in their life time while 14.4% had not experienced dysmenorrhea (Figure 2).

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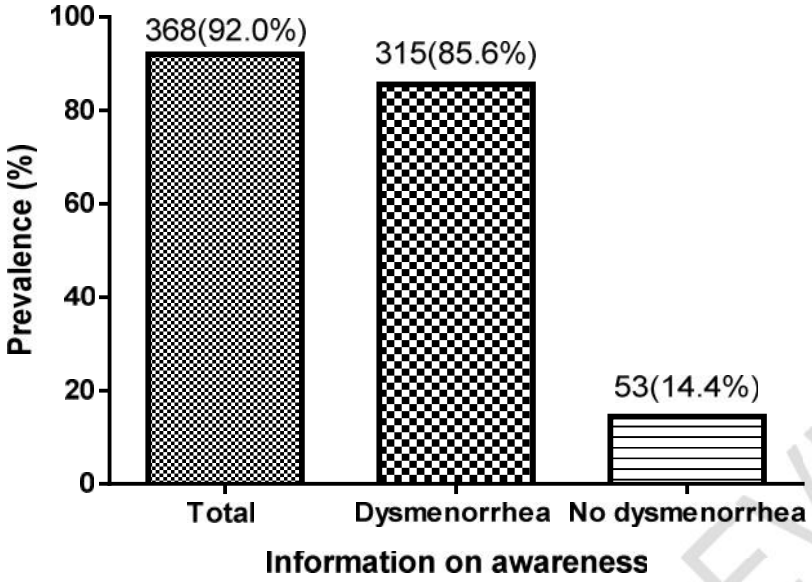

Figure 2. Prevalence of awareness of dysmenorrhea

3.5 Information on awareness stratified by dysmenorrhea status

Out of the 400 participants studied, 45.8% had heard of dysmenorrhea years after menarche, of which those who had experienced dysmenorrhea were the majority (82.0%). Among those who heard of dysmenorrhea before menarche, 87.5% of the girls had experienced dysmenorrhea while 12.5% had not.

Majority of this information were from the family members (39.5%), teachers at school (20.5%), and friends (18.8%) with the least from the media (3.3%) (Table 3).

About 75.5% of the participants felt treatment were necessary in painful menstruation of which those who had experienced dysmenorrhea seek to relax (100%), take herbs (100%) or over counter drugs (100%) as a form of medication, or lower fat and sugar intake (100%) as a remedy.

Remedies were prescribed either by self (30.8%), mother (3.8%) or a doctor (10.5%) with 70.5% of the total participants studied of the opinion that, these remedies were effective in management of painful menstruation (Table 3).

Table 3: Information on Awareness stratified by dysmenorrhea status

Variable	Dysmenorrhea, n=315(%)	No dysmenorrhea, n=53(%)
At what point did you hear of dysmenorrhea?		
Before Menarche	28 (87.5)	4 (12.5)
Immediately after Menarche	67 (90.5)	7 (9.5)
Months after Menarche	70 (88.6)	9 (11.4)
Years after Menarche	150 (82.0)	33 (18.0)
Information source		
Family (mother)	131 (82.9)	27 (17.1)
Friends	65 (86.7)	10 (13.3)
Teacher	75 (91.5)	7 (8.5)

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Media	9 (69.2)	4 (30.8)
Text books	35 (87.5)	5 (12.5)
Remedies		
Exercise	38 (92.7)	3 (7.3)
Warm compress	36 (97.3)	1 (2.7)
Over the counter drugs	61 (100.0)	0 (0.0)
Visiting a doctor	51 (94.4)	3 (5.6)
Herbs	32 (100.0)	0 (0.0)
Relaxation/rest	108 (100.0)	0 (0.0)
Lower fat and sugar foods	95 (100.0)	0 (0.0)
None	54 (96.4)	2 (3.6)
Who prescribes the remedies for you?		
Self	120 (97.6)	3 (2.4)
Mother	127 (100.0)	0 (0.0)
Father	4 (100.0)	0 (0.0)
Doctor	40 (95.2)	2 (4.8)
Friends	24 (100.0)	0 (0.0)
How effective is your management		
Effective	282 (100.0)	0 (0.0)
Not effective	33 (100.0)	0 (0.0)

Data presented as frequency (percent)

3.6 Logistic regression analysis of some selected variables and dysmenorrhea outcome

Table 4 shows univariate and multivariate logistic regression analysis of some selected variables and dysmenorrhea outcome. Menarche at age of 9-11years (OR = 1.93, 95%CI = 1.061-3.506), short (<21 days) menstrual cycle length (OR = 1.88, 95%CI = 1.017-3.490) and short (< 2 days) menstruation days (OR = 2.51, 95%CI = 1.380-4.576) were found to be risk factors for associated with dysmenorrhea among JHS girls in Upper East region.

After adjusting for confounding variables, girls (77.8%) who had menarche at age 9-11years were 2 times (aOR = 1.92, 95% CI = 1.053-3.495) more likely to experience dysmenorrhea than those who had menarche between the age 12-19years. Respondents who experienced short (<21 days) menstrual cyclic length were about 2 times (aOR = 1.98, 95% CI = 1.021-3.578) more likely to experience dysmenorrhea than those who experienced normal (22-28 days) and long (>28 days) menstrual cycle length. Furthermore, respondents whose menstruation came for 2 days or less (short menstruation days) were 3 times (aOR = 2.55, 95% CI = 1.385-4.617) more likely to experience dysmenorrhea than those with normal (2-6 days) and long (> 6 days) menstrual days (Table 4).

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195 **Table 4. Univariate and multivariate logistic regression analysis of some selected variables and dysmenorrhea outcome**

Variable	Univariate analysis				Multivariate analysis	
	Dysmenorrhea, n=340(%)	No Dysmenorrhea, n=50(%)	OR (95% CI)	p-value	aOR (95% CI)	p-value
Age (years)						
11-13	83 (84.7)	15 (15.3)	1.03 (0.547-1.947)	.92	NA	NA
14-16	212 (84.1)	40 (15.9)	1.0			
17-19	45 (90.0)	5 (10.0)	0.60 (0.226-1.569)	.29		
Age of Menarche (years)						
9-11	70 (77.8)	20 (22.2)	1.93 (1.061-3.506)	.03	1.92 (1.053-3.495)	.03
12-14	243 (86.2)	39 (13.8)	1.0		1.0	
15-17	27 (96.4)	1 (3.6)	0.20 (0.026-1.475)	.08	0.19 (0.031-1.528)	.09
Regular physical activity						
Yes	42 (93.3)	3 (6.7)	0.37 (0.112-1.247)	.10	0.37 (0.108-1.239)	.09
No	298 (83.9)	57 (16.1)	1.0		1.0	
Menstrual cycle length						
< 21 days (short)	63 (77.8)	18 (22.2)	1.88 (1.017-3.490)	.04	1.98 (1.021-3.578)	.04
22-28 days (normal)	246 (86.9)	37 (13.1)	1.0		1.0	
>28 days (long)	31 (86.1)	5 (13.9)	0.91 (0.338-2.432)	.85	1.05 (0.432-2.497)	.84
Menstruation days						
< 2 days (short)	60 (74.1)	21 (25.9)	2.51 (1.380-4.576)	.002	2.55 (1.385-4.617)	.002
2-6 days (normal)	239 (87.2)	35 (12.8)	1.0		1.0	
> 6 days (long)	41 (91.1)	4 (8.9)	0.52 (0.179-1.512)	.22	0.57 (0.175-1.524)	.23
Educational level						
JHS 1/Form 1	125 (88.0)	17 (12.0)	0.68 (0.372-1.243)	.21	0.68 (0.373-1.241)	.22
JHS 2/Form 2	116 (85.9)	19 (14.1)	0.90 (0.497-1.612)	.71	0.89 (0.485-1.608)	.71
JHS 3/Form 3	99 (80.5)	24 (19.5)	1.0		1.0	
Family history						
Yes	36 (90.0)	4 (10.0)	0.60 (0.207-1.762)	.35	0.60 (0.213-1.768)	.35
No	63 (85.1)	11 (14.9)	0.99 (0.486-2.006)	.97	0.99 (0.487-2.015)	.97
Don't know	241 (84.3)	45 (15.7)	1.0		1.0	

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Data presented as number and percentages. OR: odd ratio, aOR: adjusted odd ratio, 95% CI: 95% confidence interval and p-value <0.05 considered statistically significant.

4. DISCUSSION

The study found a prevalence of dysmenorrhea to be 85%. This high prevalence is consistent with several other studies which found a dysmenorrhea prevalence of 83.6% among female students in Tamale, Ghana [7], 74.4% in adolescent girls in Accra, Ghana [8], 78.35% in the school of Parakou in Benin [10], 76% among high secondary schoolgirls of Imphal West district, Manipur [12], 79.7% among higher secondary schoolgirls in Gwalior [13] and 84% in college going girls in India [14]. However, a prevalence of 13.7% by Ogunfowokan and Babatunde (25) in Nigeria and 25% to 50% in a Cochrane systematic review of studies in developing countries by Harlow and Campbell (15) indicate much lower prevalence. These variations of prevalence may be due to sociocultural and ethnic factors since this study was carried out in different ecological zones. Another reason for variations of prevalence may be due to different diagnostic techniques/tools, the absence of widely accepted definition of dysmenorrhea and a system for grading dysmenorrhea severity [26].

In this study, majority (84.1%) within the 14-16years age category had experienced dysmenorrhea. It was also revealed that, 46.8%, 27.3% and 11.0% of girls had experienced mild, moderate and severe menstrual pain respectively. Similar studies by Kural, Noor (14) found 29.2%, 36.6% and 34.2% and Kumar, Konjengbam (12) reported 32.8%, 46.0% and 21.2% for mild, moderate and severe pain respectively. In other studies, severe pain was reported to be 6.3% [27], 20.1% [28], 28.8% [10] and 42% [29] of adolescent girls experiencing dysmenorrhea. The observed differences may be due to a technique in grading severity of pain. Likert scale (LS) was adopted in this study to rate the severity of dysmenorrhea using the Cronbach's α coefficient (α = 0.94) [30] but other methods for assessing menstrual pain may include visual-analog and numeric scales (VAS) [31]. Furthermore, the differences in pain severity may also be due to individual differences with regards to pain perception and their threshold [10]. Pain is an immensely subjective symptom and grading the severity of dysmenorrhea had been very difficult.

The findings also showed that, as the degree of menstrual pain increases from mild, moderate to severe, interpersonal relationship with family and friends, emotional instability, reduced daily physical activity and concentration during class hours were all affected. These findings are in accordance with other findings [12, 20, 21, 27] which found that, individuals who experience painful menstruation had poor interpersonal relationships with family and friends, reduced daily physical activity, and poor examination grades due to decreased class concentration.

A previous study in Ghana reported 9.2% of young girls absent from school [8]. About one-seventh (14.7%) of girls with dysmenorrhea in this study had been absent from school for at least 1 day due to painful menstruation in the past 6 months. Although the 14.7% absenteeism reported was lower than that obtained by 46.3% in Farotimi, Esike (3) in Nigeria, 57% in Kumar, Konjengbam (12), Manipur and 80.6% in Tangchai, Titapant (32) in Thailand, it was found that absenteeism increases with increased severity of dysmenorrhea. Dysmenorrhea severity resulted in reduced class concentration and subsequently truancy which has direct negative effects on academic performance and consequently may lead to school drop-outs after junior high school (JHS).

Participants reported menarche at various ages with 77.8% of respondents with dysmenorrhea having their first menstruation between the ages 9-11 years. This is consistent with studies [12, 33] which reported 75.7% and 84.2% at menarche age of 9-11 years respectively. However, result was different from that obtained by Nidhi, Benjamin (34) who reported that, 47.0% of respondents with dysmenorrhea experienced their first menstruation between the ages <12 years.

In this study, a total of 10% participants had family history of dysmenorrhea of which majority (90%) out of the total had experienced dysmenorrhea at least once in their life time. These

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findings are in line with previous studies [14, 19, 35] which found that, majority of the participants with dysmenorrhea had history of dysmenorrhea in the family. Family history of dysmenorrhea appears to be an important risk factor for generational dysmenorrhea. The possible explanation was that, daughters or mothers who complain of menstrual pains also experienced menstrual distress, and this was associated with behaviour learned from mothers [36].

In addition, this study found a relationship between dysmenorrhea and risk factors such as respondents who had menarche between the age 9-11years, those who experienced short (<21 days) menstrual cyclic length and those who experienced short (<2 days) and menstruation days. This agrees with studies [10, 12, 18, 37] who identified early age of menstruations, short (<21 days) menstrual cycle length and short length of menstrual period as possible risk factors for dysmenorrhea.

Information on awareness of dysmenorrhea was high, however, only 8.0% of the adolescent girls out of a total of 400 participants had heard of dysmenorrhea before menarche. This implies that, majority (92.0%) of the study participants were aware of dysmenorrhea after the first menstruations. The reason may be that, many cultures in Northern part of Ghana frown against subject of menstruation and often see women in their menstrual period as not being clean. As a result, menstrual issues are covered in secrecy and are thought to be personal to only women. Similarly, 92% of Pakistan females reported needing more information about menstrual hygiene before menarche [38]. Again, 71% of girls in India did not have information about menstruation or dysmenorrhea at all [4].

Amongst those who had experienced dysmenorrhea, information on dysmenorrhea were sourced from family members (39.5%), teachers (20.5%), and friends (18.8%) with the least (3.3%) from the social media. In a similar study conducted by Ogunfowokan and Babatunde (25) in Nigeria, many adolescents (64%) received information on dysmenorrhea from their mothers. Furthermore, Chhabra, Gokhale (4) in a study of pre-menarche information and dysmenorrhea among young girls found that, amongst those with dysmenorrhea, 45% were given knowledge by their mothers, 16% received information from teachers in school, 36% from friends.

About 75.5% of the participants felt treatment was necessary in painful menstruation but only 10.5% consulted doctors with 30.8% resorting to self-medication. Involvement in self-medication for treatment of menstrual pains are in accordance with the 28.9% in rural Akwa Ibom in Nigeria [39], 34.7% in an Egyptian study [11], but lower compared with 50% [40] and 75% [9] amongst Nigerian secondary school girls. Apart from the negative side effects of self-treatment, indulgence in self-medication may have been the reason for low desire to contact medical doctors.

5. CONCLUSION

Dysmenorrhea is a common complaint among adolescent girls. The prevalence of dysmenorrhea in this study was high (85%) with girls who had experienced menarche between 9-11years, short (<21 days) menstrual cyclic length and short (<2 days) menstrual days being at risk. Some of the negative effects included; poor interpersonal relationship with family and friends, depression, low classroom concentration, school absenteeism, reduced daily physical activity and self-medication. Information on awareness was high (92.0%) but girls become more aware years after menarche.

6. STRENGTH AND LIMITATION OF STUDY

The strength of the study was that; respondents were selected from five (5) different districts in the Upper East region which does not limit the generalization of the results of the study setting. However, the limitations of the study were; the use of self-reported questionnaires and recall of painful menstruation for past 6 months could lead to false information being reported. Another limitation was that, further histological investigation was not done to

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differentiate between primary (normal ovulatory cycle) and secondary (pelvic pathology) dysmenorrhea.

7. RECOMMENDATION

Therefore, the study recommends that; reproductive health should be included in school health education programs early enough to improve menstrual health. Also, education should be extended to parents in order to address the reproductive health needs of daughters.

ETHICAL APPROVAL

Ethical clearance was sought from the Ethical review board of the School of Allied Health Sciences, University for Development Studies and Upper East Regional Directorate of Ghana Education Service.

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DEFINITIONS, ACRONYMS, ABBREVIATIONS

aOR – Adjusted Odd ratio
CI – Confidence interval
JHS – Junior High School
LS - Likert Scale
OR – Odd ratio
R/C - Roman Catholic
VAS – Visual-analog and numeric scale

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