



Research article

Self-reported effects of dysmenorrhea and its impact on health-related quality of life among female students of three tertiary institutions in Delta State of Nigeria

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ABSTRACT

Dysmenorrhea is a condition frequently reported by women of childbearing age. It may be accompanied by a number of symptoms. The severity of the symptoms of dysmenorrhea may significantly affect the professional activity of women, as well as their family and social life and also their emotional state. This study examined the self-reported effects of dysmenorrhea and its impact on the health-related quality of life of young women at the College of Education, Agbor, Delta State University Abraka and School of Health, Ufuoma. The research design was descriptive and cross-sectional employing the questionnaire as a research instrument. A total of 400 female students were randomly selected in the three institutions. SPSS Version 24 was used for the analysis. Most of the study groups were women between 16 and 27 years of age, with higher education, not married and not having children. The common symptoms experienced during menstruation were fatigue (26.3%), dizziness (15.3%) and headache (14.8%). On the impact on quality of life, 33.7%, 25.8%, 23.9% and 16.6% of all respondents always experienced negative effects in their social, career, sex and family lives respectively. The severity of menstrual cramps and diagnosis of health-associated risks among respondents from the various institutions were correlated in only Delta State University ($p=0.022$ and 0.002) and Delta-State School of Health ($p=0.006$ and 0.013) with effect on social and sex life of respondents respectively. Dysmenorrhea is an important health problem for adolescents, which adversely affects the daily activities and quality of life for adolescent women.

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INTRODUCTION

Dysmenorrhea is a condition frequently reported by women of childbearing age. It occurs in 50–90% of women of childbearing age, with the highest incidence between 19 and 23 years of age. Dysmenorrhea refers to the pain associated with menstruation (Azagew et al., 2020). It is the leading cause of recurrent short-term school absence in adolescent girls plus being a common problem in women of reproductive age (Osayande and Mehulic, 2014; Hunfeld et al., 2001).

Primary dysmenorrhea (PD) is defined as painful menses with cramping sensation in the lower abdomen that is often accompanied by other symptoms, such as sweating, headache, nausea, vomiting, diarrhoea, and tremulousness, lower abdomen, low back pain, pain spreading down the legs, nausea, vomiting, diarrhoea, fatigue, weakness, fainting, or headaches; constipation, bloating, emotional disturbances; sleep disturbances (Smith and Kaunitz, 2015). All these symptoms occur just before or during the menses in women with normal pelvic anatomy. Symptoms of dysmenorrhea may include

cramping or pain in the Health-related quality of life (HRQOL) represents how an individual perceives the impact of a health condition on daily living and is one of the most significant patient-reported outcome measures (Skevington, 1998; Till, 1994).

Health-related quality of life (HRQOL) is a multi-dimensional concept that includes domains related to physical, mental, emotional, and social functioning. It goes beyond direct measures of population health, life expectancy, and causes of death, and focuses on the impact health status has on quality of life

HRQOL is a subjective and multidimensional concept that includes aspects of physical, mental, and social health (Ferrans, 2005; Iacovides et al., 2014). A related concept of HRQOL is well-being, which assesses the positive aspects of a person's life, such as positive emotions and life satisfaction. Well-being is a relative state where one maximizes his or her physical, mental, and social functioning in the context of supportive environments to live a full, satisfying, and productive life (Kobau et al., 2021; Wong, 2011). The significance of quality of life and well-being as a public health concern is not new. Since

1949, the World Health Organization (WHO) has noted that health is a state of complete physical, mental, and social well-being and not merely an absence of disease and infirmity (Iacovides et al., 2014; Barnard et al., 2003)

As at the time of this study, there has been no study of the impact of dysmenorrhea on quality of life among young women in the southern part of Nigeria, particularly in Delta State. This is the gap in the literature that this study is designed to address. In this regard, the study aimed to evaluate the self-reported effects of dysmenorrhea and its impact on Health-related Quality of Life among selected young women at Delta State University, Abraka (DELSU), College of Education, Agbor (COE) and Delta State School of Health Ufuoma (DSHT).

MATERIALS AND METHODS

This was a descriptive, cross-sectional survey to evaluate the Self-reported Effects of dysmenorrhea and the impact of dysmenorrhea on health-related quality of life in young women of Delta-State, Nigeria. The respondents were from DELSU, DSHT and COE. The sample population was female students (400) in the selected tertiary institutions who are of child-bearing age. They were interviewed with the use of a well-structured in-

house questionnaire. All participants consented to the study. The minimum sample size was calculated with the aid of the online sample size calculator at a 95% confidence level and 5% margin of error.

Data analysis

Responses derived from all questionnaires were coded into quantitative data to enable parametric and non - parametric analyses. Data were entered into a Microsoft Excel spreadsheet, transported into the Statistical Package for the Social Sciences (SPSS) version 24. Data generated from SPSS were descriptive and some test statistics or inferential statistics such as the Chi-square test was carried out to evaluate significant relationship or association with categorical data.

RESULTS

Most of the study groups were women between 16 and 27 years of age, with higher education, not married and not having children. Regarding common symptoms associated with cramps during menstruation, 26.3% identified fatigue, 15.3% stated dizziness, 14.8% reported headache and 3.8% fainting (Table 1).

Table 1. Common symptoms associated with cramps during menstruation respondents.

Variables/ Common symptoms	Delta State University, Abraka		College of Education, Agbor		School of health technology, Ufuoma		Mean response (%)
	Frequency	Percent (%)	Frequency	Percent (%)	Frequency	Percent (%)	
Nausea	36	24.0	9	6.0	3	3.0	16.0 (7.7)
Vomiting	24	16.0	6	4.0	18	18.0	16.0 (7.7)
Diarrhea	39	26.0	15	10.0	7	7.0	20.67 (9.9)
Constipation	15	10.0	9	6.0	4	4.0	9.33 (4.5)
Headache	39	26.0	36	24.0	21	21.0	31.0 (14.8)
Dizziness	39	26.0	33	22.0	24	24.0	32.0 (15.3)
Disorientation	42	28.0	3	2.0	18	18.0	21.0 (10.0)
Fainting	18	12.0	3	2.0	3	3.0	8.0 (3.8)
Fatigue	78	52.0	60	40.0	27	27.0	55.0 (26.3)
Total	150	100	150	100	100	100	

Effects of dysmenorrhea on quality of life

With respect to negative effects of dysmenorrhea on the quality of life, 33.7%, 25.8%, 23.9% and 16.6% of all respondents always experienced negative effects in their social, career, sex and family life, respectively while 39.8%, 25.2%, 19.5% and 15.5% of all respondents never reported a negative effect on family, sex, career and social life (Fig. 1).

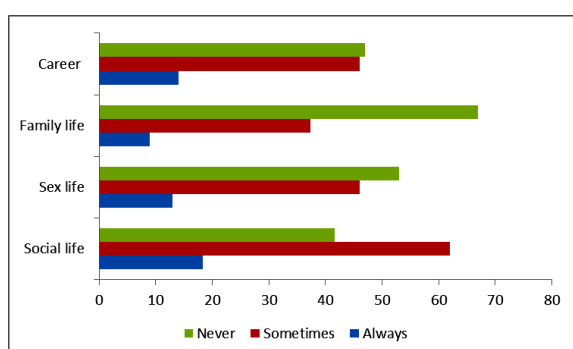


Fig. 1. Negative effect of dysmenorrhea on the life

Self-reported negative effects on the life of women

A total of 16.2% of all respondents ALWAYS experienced loss of appetite, irritability (13.4%) and depression (12.7%) while all respondents never expressed indigestion (9.5%), hyperexcitability (9.5%) and anxiety (8.8%) (Fig. 2 and Table 2). In terms of severity of symptoms, respondents self-reported them as very severe (26.8%), severe (29.1%) and not severe (44.1%).

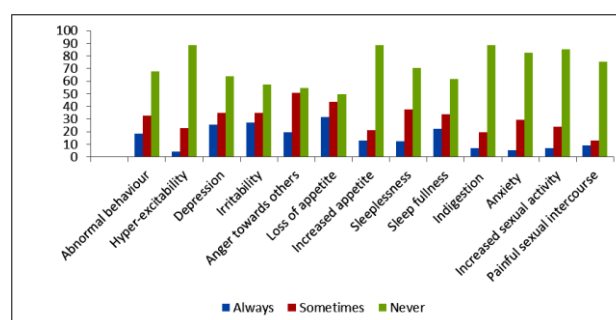


Fig. 2. Mean responses of frequency of negative effects on life experienced by women with dysmenorrhea

Table 2. Frequency of negative effects on life experienced by women with dysmenorrhea

Variables	Institute	Always	Mean	Sometimes	Mean	Never	Mean	No response	Mean
		F (%)	F (%)	F (%)	F (%)	F (%)	F (%)	F (%)	F (%)
Abnormal behaviour	Delsu	21 (14.0)	18.33 (9.1)	27 (18.0)	32.67 (14.9)	78 (52.0)	68.0 (7.4)	21 (14.0)	13.33 (7.3)
	Agbor	24 (16.0)		33 (22.0)		74 (49.3)		19 (12.7)	
	Ufuoma	10 (10.0)		38 (38.0)		52 (52.0)		0 (0)	
Hyper-excitability	Delsu	9 (6.0)	4.0 (1.9)	24 (16.0)	22.67 (10.6)	90 (60.0)	88.33 (9.5)	27 (18.0)	18.33 (10.1)
	Agbor	3 (2.0)		18 (12.0)		107 (71.3)		22 (14.7)	
	Ufuoma	0 (0)		26 (26.0)		68 (68.0)		6 (6.0)	
Depression	Delsu	30 (20.0)	25.67 (12.7)	36 (24.0)	34.67 (16.2)	69 (46.0)	63.67 (6.8)	15 (10.0)	10.33 (5.7)
	Agbor	24 (16.0)		26 (17.3)		81 (54.0)		16 (10.7)	
	Ufuoma	23 (23.0)		36 (36.0)		41 (41.0)		0 (0)	
Irritability	Delsu	45 (30.0)	27.0 (13.4)	36 (24.0)	34.67 (16.2)	48 (32.0)	57.33 (6.1)	21 (14.0)	14.33 (7.9)
	Agbor	24 (16.0)		26 (17.3)		81 (54.0)		19 (12.7)	
	Ufuoma	12 (12.0)		42 (42.0)		43 (43.0)		3 (3.0)	
Anger towards others	Delsu	21 (14.0)	19.33 (8.4)	69 (46.0)	51 (21.6)	48 (32.0)	54.67 (5.9)	12 (8.0)	8.33 (4.6)
	Agbor	18 (12.0)		51 (34.0)		68 (45.3)		13 (8.7)	
	Ufuoma	19 (19.0)		33 (33.0)		48 (48.0)		0 (0)	
Loss of appetite	Delsu	45 (30.0)	31.67 (16.2)	45 (30.0)	43.67 (19.3)	45 (30.0)	49.67 (5.3)	15 (10.0)	8.33 (4.6)
	Agbor	23 (15.3)		57 (38.0)		60 (40.0)		10 (6.7)	
	Ufuoma	27 (27.0)		29 (29.0)		44 (44.0)		0 (0)	
Increased appetite	Delsu	6 (4.0)	13.0 (6.1)	27 (18.0)	21.33 (10.1)	99 (66.0)	88.67 (9.5)	18 (12.0)	10.33 (5.7)
	Agbor	24 (16.0)		18 (12.0)		95 (63.3)		13 (8.7)	
	Ufuoma	9 (9.0)		19 (19.0)		72 (72.0)		0 (0)	
Sleeplessness	Delsu	21 (14.0)	12.33 (5.8)	33 (22.0)	37.67 (17.8)	75 (50.0)	70.67 (7.6)	21 (14.0)	12.67 (7.0)
	Agbor	6 (4.0)		30 (20.0)		103 (68.7)		11 (7.3)	
	Ufuoma	10 (10.0)		50 (50.0)		34 (34.0)		6 (6.0)	
Sleep fullness	Delsu	24 (16.0)	22.0 (10.1)	36 (24.0)	33.67 (15.9)	63 (42.0)	61.67 (7.2)	27 (18.0)	16.0 (8.8)
	Agbor	24 (16.0)		36 (24.0)		76 (50.7)		14 (9.3)	
	Ufuoma	18 (18.0)		29 (29.0)		46 (46.0)		7 (7.0)	
Indigestion	Delsu	6 (4.0)	7.0 (2.4)	21 (14.0)	19.67 (9.1)	93 (62.0)	88.33 (9.5)	30 (20.0)	18.33 (10.1)
	Agbor	9 (6.0)		15 (10.0)		112 (74.7)		14 (9.3)	
	Ufuoma	6 (6.0)		23 (23.0)		60 (60.0)		11 (11.0)	
Anxiety	Delsu	12 (8.0)	5.0 (2.0)	33 (22.0)	29.33 (13.3)	78 (52.0)	82.67 (8.8)	27 (18.0)	17.33 (9.5)
	Agbor	0 (0)		36 (24.0)		100 (66.7)		14 (9.3)	
	Ufuoma	3 (3.0)		16 (16.0)		70 (70.0)		11 (11.0)	
Increased sexual activity/appetite	Delsu	6 (4.0)	7.0 (2.4)	15 (10.0)	23.67 (11.9)	105 (70.0)	85.33 (9.1)	24 (16.0)	17.33 (9.5)
	Agbor	15 (10.0)		24 (16.0)		97 (64.7)		14 (9.3)	
	Ufuoma	0 (0)		32 (32.0)		54 (54.0)		14 (14.0)	
Painful sexual intercourse	Delsu	3 (2.0)	9.33 (3.7)	12 (8.0)	12.67 (8.4)	108 (72.0)	75.33 (8.1)	27 (18.0)	17.0 (9.3)
	Agbor	9 (6.0)		9 (6.0)		118 (78.7)		14 (9.3)	
	Ufuoma	16 (16.0)		17 (17.0)		57 (57.0)		10 (10.0)	
Total	Delsu	249 (12.8)		414 (21.3)		999 (51.3)		285 (14.6)	
	Agbor	203 (9.9)		379 (18.4)		1284 (2.4)		193 (9.4)	
	Ufuoma	153 (11.8)		390 (30.0)		689 (53.0)		68 (5.2)	

Severity of menstrual cramps and quality of life

In respect of the relationship between severity of menstrual cramps and diagnosis of health-associated risks among respondents from the various institutions, significance was found in only DELSU ($p=0.022$ and 0.002) and Ufuoma ($p=0.006$ and 0.013) with effect on social and sex life of respondents respectively. Only COE ($p=0.033$) showed statistical relevance of severity of cramps on the family of respondents. Only DELSU

showed no statistical relevance ($p=0.070$) on the career of respondents.

It can be seen that for respondents from COE Agbor, the severity of cramps only affected their career and family life while for respondents from DELSU Abraka, there was a relationship between the severity of cramps and the quality of their social and sex life. For respondents from UFUOMA, there was a relationship between the severity of cramps and the quality of their social, sex and career life (Table 3).

Table 3. Relationship between severity of menstrual cramps and quality of life of young women in Delta State

Variable	Severity of cramps/pains during period				Chi-square/ P-Value
	Very severe (%)	Severe (%)	Not severe (%)	Total (%)	
DELSU					
Social life					
Always	9 (42.9)	9 (42.9)	3 (14.3)	21 (100)	X ² = 11.487 df = 4 P = 0.022
Sometimes	27 (45.0)	15 (25.0)	18 (20.0)	60 (100)	
Never	6 (16.7)	18 (50.0)	12 (33.3)	36 (100)	
Total	42 (35.9)	42 (35.9)	33 (28.2)	117 (100)	
Sex life					
Always	3 (50.0)	3 (50.0)	0 (0)	6 (100)	X ² = 16.793 df = 4 P = 0.002
Sometimes	18 (46.2)	6 (15.4)	15 (38.5)	39 (100)	
Never	12 (21.1)	30 (52.6)	15 (26.3)	57 (100)	
Total	33 (32.4)	39 (38.2)	30 (29.4)	102 (100)	
Family life					
Always	3 (33.3)	3 (33.3)	3 (33.3)	9 (100)	X ² = 0.457 df = 4 P = 0.978
Sometimes	12 (30.8)	15 (38.5)	12 (30.8)	39 (100)	
Never	24 (36.4)	24 (36.4)	18 (27.3)	66 (100)	
Total	39 (34.2)	42 (36.8)	33 (28.9)	114 (100)	
Career (school, work, etc.)					
Always	3 (16.7)	9 (50.0)	6 (33.3)	18 (100)	X ² = 8.665 df = 4 P = 0.070
Sometimes	30 (47.6)	18 (28.6)	15 (23.8)	63 (100)	
Never	9 (25.0)	15 (41.7)	12 (33.3)	36 (100)	
Total	42 (35.5)	42 (35.5)	33 (28.2)	117 (100)	
COE					
Social life					
Always	3 (14.3)	9 (42.9)	9 (42.9)	21 (100)	X ² = 7.403 df = 4 P = 0.116
Sometimes	17 (28.8)	18 (30.5)	24 (40.7)	59 (100)	
Never	2 (8.3)	12 (33.3)	21 (58.3)	36 (100)	
Total	23 (19.8)	39 (33.6)	54 (46.6)	116 (100)	
Sex life					
Always	3 (16.7)	6 (33.3)	9 (50.0)	18 (100)	X ² = 2.875 df = 4 P = 0.238
Sometimes	9 (21.4)	12 (28.6)	21 (50.0)	42 (100)	
Never	3 (7.1)	15 (35.7)	24 (57.1)	42 (100)	
Total	15 (14.7)	33 (32.4)	54 (52.9)	102 (100)	
Family life					
Always	3 (50.0)	3 (50.0)	0 (0)	6 (100)	X ² = 10.487 df = 4 P = 0.033
Sometimes	3 (11.1)	9 (33.3)	15 (55.6)	27 (100)	
Never	6 (10.5)	18 (31.6)	33 (57.9)	57 (100)	
Total	12 (13.3)	30 (33.3)	48 (53.3)	90 (100)	
Career (school, work, etc.)					
Always	6 (40.0)	6 (40.0)	3 (20.0)	15 (100)	X ² = 16.588 df = 4 P = 0.002
Sometimes	11 (19.6)	24 (42.9)	21 (37.5)	56 (100)	
Never	3 (7.7)	9 (23.1)	27 (69.2)	39 (100)	
Total	20 (18.2)	39 (35.5)	51 (46.4)	110 (100)	
DSHT					
Social life					
Always	6 (46.2)	0 (0)	7 (53.8)	13 (100)	X ² = 14.560 df = 4 P = 0.006
Sometimes	7 (16.7)	13 (31.0)	22 (52.4)	42 (100)	
Never	7 (35.0)	0 (0)	13 (65.0)	20 (100)	
Total	20 (26.7)	12 (17.3)	42 (56.0)	75 (100)	
Sex life					
Always	3 (20.0)	6 (40.0)	6 (40.0)	15 (100)	X ² = 12.594 df = 4 P = 0.013
Sometimes	10 (34.5)	0 (0)	19 (65.5)	29 (100)	
Never	10 (33.3)	7 (23.3)	13 (43.3)	30 (100)	
Total	23 (31.1)	13 (17.6)	38 (51.4)	74 (100)	
Family life					
Always	3 (25.0)	0(0)	9 (75.0)	12 (100)	X ² = 4.701 df = 4 P = 0.319
Sometimes	10 (33.3)	7(23.3)	13 (43.3)	30 (100)	
Never	10 (27.4)	6(16.7)	20 (55.6)	36 (100)	

Total	23 (29.5)	13(16.7)	42 (53.8)	78 (100)	
Career (school, work, etc.)					
Always	6 (66.7)	3 (33.3)	0 (0)	9 (100)	$X^2 = 19.908$ $df = 4$ $P = 0.001$
Sometimes	7 (16.3)	10 (23.3)	26 (60.5)	43 (100)	
Never	10 (38.5)	0 (0)	16 (61.5)	26 (100)	
Total	23 (29.5)	13 (16.7)	42 (53.8)	78 (100)	

DISCUSSION

Common symptoms associated with cramps during menstruation

Dysmenorrhea is commonly accompanied by one or more systemic symptoms. Symptoms of PD include cramping pain in the lower abdominal area which may, or may not, radiate to the lower back and which is accompanied by a headache, nausea, tiredness, vomiting, irritability, diarrhoea and an overall feeling of discomfort (Tataj-Puzyna et al., 2021; Hailemeskel et al., 2016). The most prevalent symptoms in a study were tiredness (47.9%), backache (38.3%), and anger (34.5%), (Omidvar and Begum, 2011).

In the present study, there were varying symptoms experienced by respondents in the three (3) different chosen tertiary institutions ranging from nausea to vomiting, diarrhoea, headache etc. Less than one-third of all respondents experienced nausea/vomiting, diarrhoea, headache and dizziness. In terms of the severity of dysmenorrheic pain, respondents self-reported it as Very severe (26.8%), severe (29.1%) and not severe (44.1%). Dysmenorrhea has been similarly classified as mild, moderate or severe, depending on the degree of pain experienced. However, our results deviate from a study that reported severe dysmenorrhea in 66.2%, moderate dysmenorrhea in 30.7% and only 3% had mild dysmenorrhea (Fernández-Martínez et al., 2019). Also, another study reported that most of the respondents, during menstruation, experienced severe pain (Midilli et al., 2015).

The discrepancy may be due to the methods of assessment of Pain Severity. Many methodological problems are encountered during quantifying and grading the severity of pain related to dysmenorrhea. Quantifying and assessment tools depend on women's self-reporting with potential bias (Midilli et al., 2015).

Negative effect of dysmenorrhea on the quality of life of young women

From the results obtained, about a tenth of the respondents from the three institutions always experienced negative effects of dysmenorrhea on their social, sex, career and family lives while about 40% of respondents never experienced negative effects.

Our results support those of previous cross-sectional studies showing reduced health-related QoL in women with dysmenorrhea (Skevington, 1998; Unsal et al., 2010; Ortiz et al., 2010; Souza et al., 2011; Midilli et al., 2015).

Severe dysmenorrheic pain has been adduced to be associated with a reduced QoL in women with dysmenorrhea compared with their own pain-free follicular phase and compared with controls. Therefore, each monthly dysmenorrheic pain has been reported to negatively impact HRQOL, specifically during

menstruation. Moreover, Pain is opined as one of the largest contributors to poor QoL (Skevington, 1998).

The severity of the symptoms of dysmenorrhea may significantly affect the scientific and professional activity of women, as well as their family and social life. The symptoms occurring during menstruation also affect the woman's emotional state, which may contribute to the occurrence of premenstrual syndrome, premenstrual dysphoric disorder (PMDD), depression, or other mood disorders (Hailemeskel et al., 2016; Akiyama et al., 2017). A study reported that almost half of the study participants reported that the occurrence of menstrual pain involved the reorganization of previous arrangements; most women cancelled classes/appointments and gave up sports because of menstrual pain (Tataj-Puzyna et al., 2021). The severity of pain related to dysmenorrhea could probably restrict movement affecting working ability since nearly half of the participants with mild and moderate dysmenorrhea were reported to be affected moderately during the menstrual time (Omidvar and Begum, 2011; Abu Helwa et al., 2018; Fernández-Martínez et al., 2019).

Our study has contributed to the current health-related problems of women which curtails their productivity. Although the problem faced by the women is for a short duration, the repetitiveness makes it a serious concern and requires a corrective measure (Vaidya et al., 1998; Abdel-Salam et al., 2018). Dysmenorrhea and PMS affect not only the woman but also family, social and national economics as well (Shiferaw et al., 2014).

In contradistinction, a study reported no significant impact of dysmenorrhea on most aspects of quality of life among Spanish female university students using EuroQol-5 dimensions - 5 (EQ-5D-5L) instrument. As pointed out above, the disparity may arise from the study design.

Negative symptoms experienced by women

Less than one-tenth of respondents from COE and DSHT and one-fifth of respondents from DELSU Always experienced negative symptoms. On the other hand, about half of respondents from DELSU and DSHT Never experienced negative symptoms while only 2.4% of respondents from COE Never experienced negative symptoms. A little less than one-fifth of all respondents always experienced loss of appetite, whereas about one-tenth of respondents complained of irritability and depression. Also, about one-tenth of respondents never experienced indigestion hyperexcitability and anxiety. In a study, the most common symptoms observed to be associated with dysmenorrhea were sleep affected in 64% and headache in 56%; less common symptoms were vomiting present in 30%, abdominal bloating in 24% of the students (Souza et al., 2011).

A cursory look at the dysmenorrheic symptoms experienced showed a lot of similarities between the three institutions studied.

Correlations

The study reported a significant correlation in the impact of dysmenorrhea on health-related outcomes. There was revealed a significant correlation between the severity of menstrual cramps and quality of life. For DELSU and DSHT, a significant correlation was found concerning effects on social and sex life. However, for COE, the severity of cramps only affected their career and family life. This conforms with literature reports of the negative impact of dysmenorrhea on the quality of life in women with dysmenorrhea (Vincent et al., 2011; Souza et al., 2011).

CONCLUSION

The study aimed to evaluate the Self-reported Effects of Dysmenorrhea and its impact on Health-related Quality of Life among selected young women at Delta State University, Abraka, College of Education, Agbor and Delta State School of Health Ufuoma. The outcome revealed that the respondents experienced commonly expected dysmenorrheic signs/symptoms which were similar among the three institutions. The study also revealed that the quality of life of the respondents in the three institutions was significantly affected by dysmenorrhea, from social and sex life to career and family. Dysmenorrhea is an important health problem for adolescents that adversely affects the daily activities and quality of life of adolescent women. Dysmenorrhea affects not only the woman but also family, social and national economics as well.

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AUTHORS' CONTRIBUTIONS

EJF: Head of the research team, guided the development and implementation of the research protocol; vetting and approval of the manuscript; OPA: Helped in data analysis, interpretation of results and manuscript draft; UBC: Carried out the survey; data analysis; AJE: Supervision, helped in data analysis; interpretation of results and manuscript vetting.

CONFLICTS OF INTEREST

The author(s) declare(s) no conflicts of interest.

DECLARATION

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