Prevalence of dysmenorrhoea and its associated factors among female medical students at Kampala International University Western Campus

Eseza Teopistar Namawejje

Department of Medicine and Surgery, Kampala International University, Uganda.

ABSTRACT

The study aimed to determine the prevalence of dysmenorrhea and its associated factors among female medical students at Kampala international University–western campus. A descriptive cross sectional study design was conducted in order to determine the prevalence of dysmenorrhea and its associated factors among female medical students at Kampala International University Ishaka. A cross sectional study is chosen due to its ability to provide quantitative data. The study was conducted among female medical students that is; those offering certificate, diploma and bachelor nursing at Kampala International University western campus Ishaka. The study sampled 259 respondents to represent the whole population. The data collected was statistically analyzed and documented using Microsoft Excel. The excel file was imported into a software Statistical Package Social Sciences (SPSS) version 21. Among the respondents 6.9% had experience their first menstrual period at age of 12, 37.8% of the respondents experience at age of 12-14, 44.8% of the respondents experience at age 15-16 while 10.4% of the respondents experience at age of 16. It was concluded that prevalence of the dysmenorrhea is high in our study population. So, from the study it can be concluded that dysmenorrhea is a very common problem among girls, such high prevalence makes dysmenorrhea a significant public health problem among young students that demands some attention from policy makers. The recommended that enlightenment programmes should be organized periodically by the school health nurses on the various management strategies for menstrual disorders and how to use them effectively.

Keywords: dysmenorrhea, menstrual period and disorders

INTRODUCTION

Dysmenorrhea refers to a cyclical lower abdominal or pelvic pain which may be felt in the back or thighs during menstruation that is often accompanied by other biological symptoms such as dizziness, fatigue, sweating, backache, headache, nausea, vomiting, and diarrhea [1]. There are two types of dysmenorrhea: primary dysmenorrhea refers to pain with no obvious pelvic pathology or painful menses with normal pelvic anatomy that begin during ovulatory cycles. Secondary dysmenorrhea is menstrual pain that is usually associated with underlying pathology and its onset usually takes longer years after menarche or it is more common in older age and can occur any times [2]. Globally the prevalence of dysmenorrhea ranges between 45 and 95% of menstruating women, with very severe primary dysmenorrhea estimated to affect 10–25% of women of reproductive age. Several studies conducted on young dysmenorrheic women have showed that 1–2 working days per month are lost due to dysmenorrhea. This rates of absenteeism in these women range from 34 to 50% with an estimated 10–30% of all working or studying women with amounts to an annual loss of 600 million working hours or up to $2 billion annually in the USA [3]. In a developed country like Sweden, the prevalence of dysmenorrhea was found to be 89% where by 36% of these young women reported that pain was severe presenting with extra genital symptoms such as headache, fatigue, dysuria and approximately two thirds of these young women reported absenteeism from school and from leisure activities due dysmenorrhea several times per year [4]. In china, it was found that 65.5% of adolescents suffered from dysmenorrhea where by Over 90% of these didn't seek medical advice, and yet some reported self-medicating with an incorrect dose or unknown medication [5]. In developing country like India, dysmenorrhea was found to be highly prevalent at a rate of 84.2% among college going girls and it was

also revealed that family history, bleeding duration and presence of clots were the risk factors for dysmenorrhea. Majority of these girls suffered from pre -menstrual symptoms which indicated the magnitude of problem and hence, the need for appropriate intervention through a change in lifestyle [6]. In Africa, a cross sectional study carried out among university students in northern Ghana, found out the prevalence rate of dysmenorrhea was 83.6% with more than half describing their pain which lasts less than 3 days as moderate and it was found that there was association between the chronological and gynecological ages where younger students experienced dysmenorrhea a lot more. Irregular menstruation was also associated with the severest form of dysmenorrhea [7]. In sub–Saharan Africa, a study conducted in Ethiopia revealed that 69.3% of young students had dysmenorrhea and associated factors were found to be age, positive family history, excessive sugar intake habit, early menarche and heavy menstrual period [8].

In east Africa, a cross sectional study carried out in Kenya revealed that Dysmenorrhea was the most prevalent symptom at 72% where by 29% of the participants reported experiencing severe pain. Regular absenteeism and limitation of daily activities was found to be associated with dysmenorrhea. However, 94% of the student had not heard of endometriosis, yet it was further revealed that dysmenorrhea and pelvic pain that interfered with ordinary chores was most likely caused by endometriosis [9].

In Uganda, a study among students aged 18-45years in higher institutions of learning in Kampala capital city revealed the prevalence of dysmenorrhea to be 75.8% and associated factors were found: having children and daily consumption of chocolate or no sugary foods at all and no family history of dysmenorrhea [10].

In western Uganda, a survey conducted in Kasese District showed that 74% of girls had a belief that dysmenorrhea was a sign of illness that indicated lack of sufficient knowledge [10]. In Bushenyi District, data about dysmenorrhea is missing. Risk factors for dysmenorrhea are; smoking, earlier age at menarche, longer and heavier menstrual flow, higher BMI, alcohol consumption, family history of dysmenorrhea, age and null parity [3]. Dysmenorrhea adversely affects female students' school performance. It was revealed that menstrual pain causes absences during important classroom time, and when present, it decreased class concentration and focus on exam that ultimately leads to poor school performance. Furthermore, students with dysmenorrhea tend to have poor relationships with family and friends and limited engagement in sports activities. It also negatively affects the students' daily household chores and decreases their productivity [11]. Despite the negative impact of dysmenorrhea on women's lives, most women do not seek health care to address their condition [12]. This is why I thought to carry out this research to determine the prevalence of dysmenorrhea and its associated factors among student female students at Kampala international university –western campus.

METHODOLOGY

Study design and rationale
A descriptive cross sectional study design [13] was conducted in order to determine the prevalence of dysmenorrhea and its associated factors among female medical students at Kampala International University Ishaka. A cross sectional study is chosen due to its ability to provide quantitative data.

Study area
The study was conducted at Kampala International University western campus a private university because it has many students from different backgrounds.

Study population
The study was conducted among female medical students that is; those offering certificate, diploma and bachelor nursing at Kampala International University western campus Ishaka.

Inclusion criteria
The study included all female medical students at Kampala International University Western Campus, Ishaka that were available at the time of collecting

data and willing to give an informed consent to participate in the study.

Exclusion criteria
Female medical students who declined to participate in the study and all female students who were not nurses.

Sample Size Estimation
Sample size was determined based on (Solviens formula) it easy to use to find my target number.

n = N/ 1+ N (e) 2

Where;
N = Expected sample,
n = Target population,
e = level of significance.
n =731/1+731(0.05x0.05)
n =731/1+1.8275
n =650/2.8275
n =259

Sampling technique
Stratified sampling technique first was employed after which respondents were picked randomly from

each class to participate in the study, from which data was collected. A letter was taken to the administration of clinical medicine to seek permission to carry out the study. Calculations were done to obtain a sample that is proportional to the size of medical students. English being an official language for Uganda, all communication were maintained in English. Respondents were picked from different courses as below;

Table 1: Allocation of samples

Student population	Total number	Sample size to be selected
Certificate female students	616	616/731 x259=218
Diploma female students	59	59/731 x259=21
Bachelor female students	56	56/731 x259=20

Data analysis

The data collected was statistically analyzed and documented using Microsoft Excel. The excel file was imported into a software Statistical Package Social Sciences (SPSS) version 21. Descriptive statistics was used to summarize the socio-demographic, personal and lifestyle factors of the participants. Logistic regression analysis was carried out at two levels to identify factors associated with dysmenorrhea; bivariate logistic regression was performed to each independent variable with the outcome variable.

All these variables with a p-value of < 0.25 in the bivariate analysis were entered to multivariable logistic regression analysis.

Ethical considerations.

Approval was obtained from school of research committee, KIU-WC and a letter of introduction was obtained from the faculty Dean of medicine and dentistry to be presented to the hospital administration [14].

RESULTS
Table 2 Socio-demographic factors

Variable	category	frequency	PERCENTAGE
Age(yrs)	18-24	221	85.4
	25-31	33	12.7
	32-38	5	1.9
	Total	**259**	**100**
Marital status	Single	252	97.3
	Married/cohabiting	5	1.9
	Widowed	0	
	Divorced	2	0.8
	Total	**259**	**100**
Number of children	0	252	97.3
	<4	7	2.7
	>4	0	0
	Total	**259**	**100**
Employment status	Employed	6	2.3
	Unemployed	253	97.7
	Total	**259**	**100**
Religion	Protestant	61	23.5
	Catholic	72	27.8
	Muslim	45	17.4
	Pentecostal	52	20.1
	SDA	11	4.2
	Others	18	6.9
	Total	**259**	**100**

Age of the respondents: majority 97.3% of the respondent were between 18-24 while the least were between 32-38% with 1.9%. Marital status most respondents were single 259 (97.3%), while minority were divorced 0.8%. Among the respondents 252(97.3%) had not yet given birth to a child, while

2.7% had <4 children. Employment among the respondents, 2.3% of the respondents was employed and 97.7% of the respondents were unemployment. Religion of the respondents; majority 27.8% of respondents were Catholics while the minority were

other religions with 6.9%. Among the respondents 68.7% of the respondents said that they experience pain during their period while 31.3% of the respondents said that they don't have pain during their period.
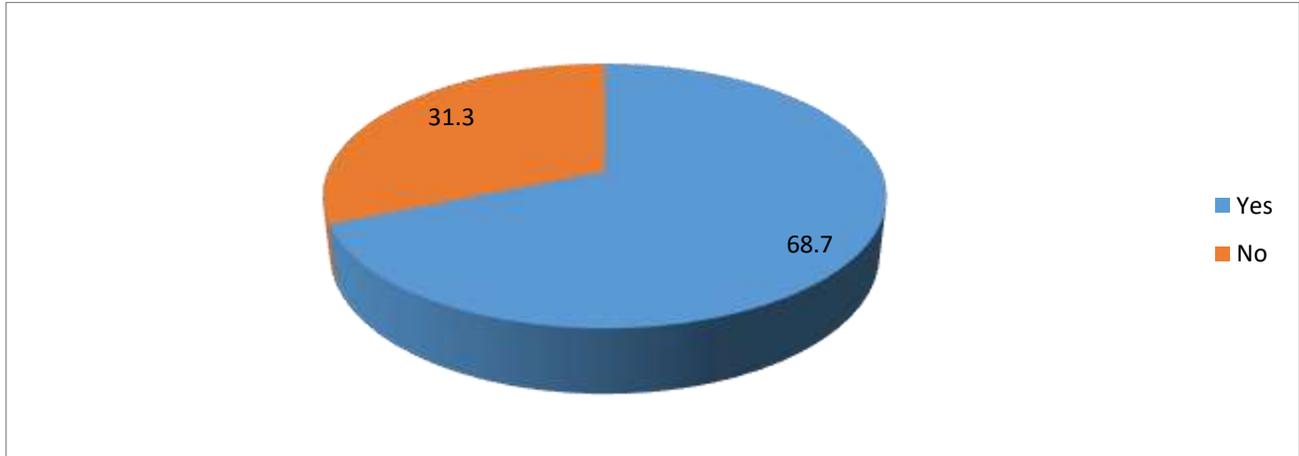

Figure 1: Pain during your periods

55.1% of the respondents said that they experience pain before and menstruation while 44.9 they experience pain during menstruation.
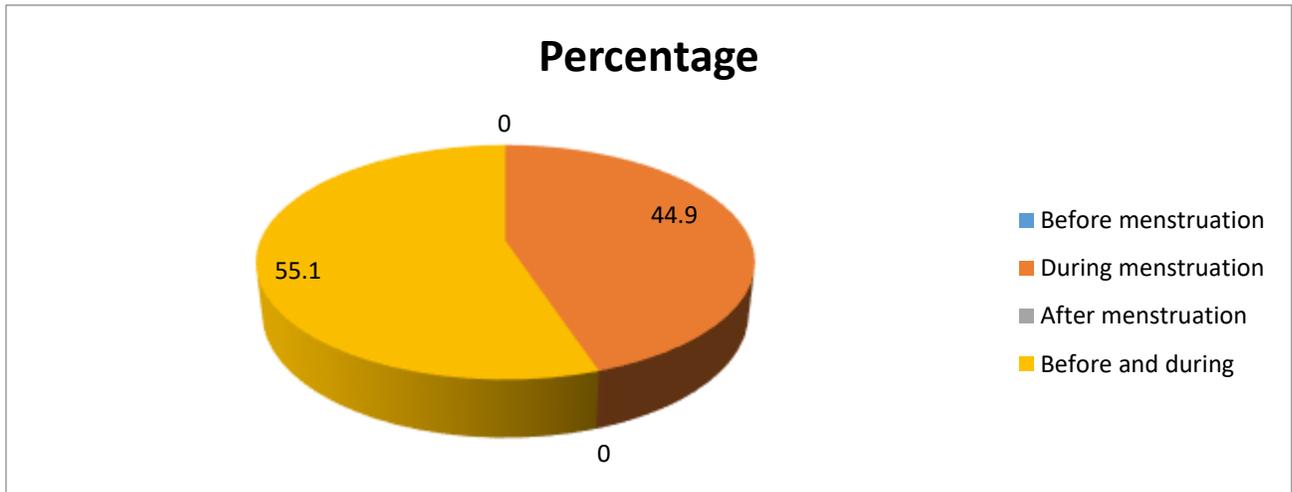

Figure 2: The pain duration

From the findings, 60.1% of the respondents use pain killers, 20.2% took a rest, none of respondents

take minerals, 14.6% take hot water bottle and 5.1% used contraceptives.
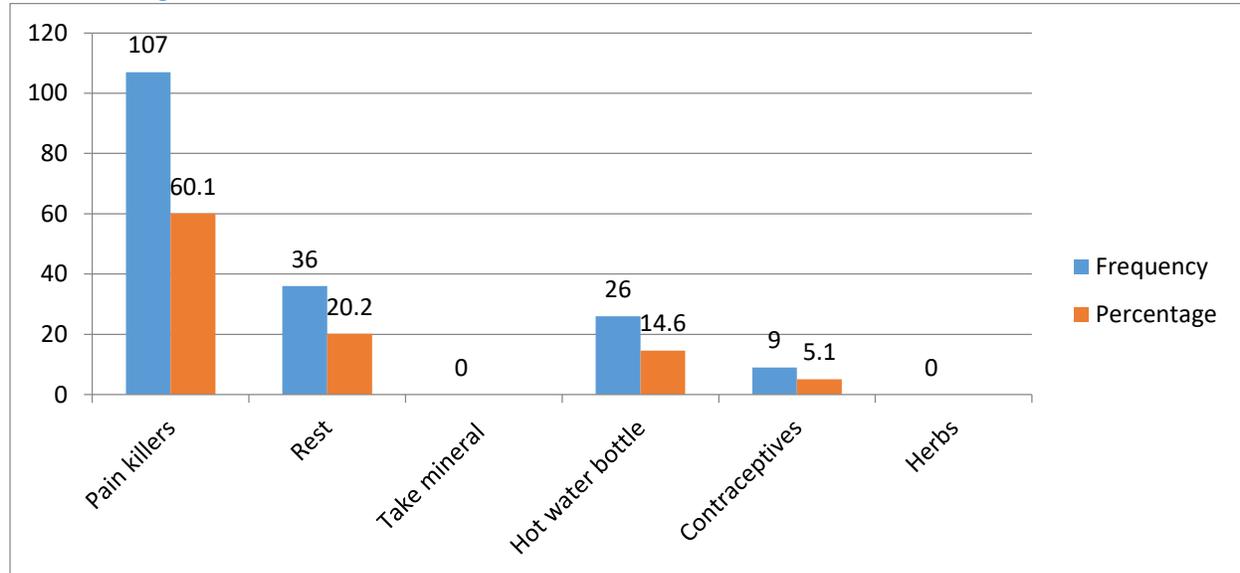
Figure 3: Methods to relieve pain

Among the respondents 6.9% had experience their firs menstrual period at age of 12, 37.8% of the respondents experience at age of 12-14, 44.8% of the respondents experience at age 15-16 while 10.4% of the respondents experience at age of 16. Majority of the respondents 93.1% said yes that they experience their periods every month while 6.9% of the respondents said no that they don't experience their periods every month. Among the respondents who had 1-2 days menstrual period in month were 8%, those who had 3-4 days were 33%, and those who had 5-6 days were 3.5%, 72.6% were those who had 3-4 days, 2.4 had 5-6 days none of respondents have 7 days and above. Menstruation cycle duration,6.2% of the respondents had <21days, 89.2 had 21-35days while 4.6% of the respondents had >35days. Majority 75.6 had regular cycle menstruation period unlike 24.4% had irregular Circle. 61.1% of participants who do not experience periods, do not take drugs for any chronic unlike 38.9% of participants who do not experience periods take drugs for any chronic. Most of 62.2% respondents had relatives who experience pain during menstruation unlike 38.2% does not have. From the findings most of respondents' relatives who experienced pain during menstruation period were their sisters 66.5% unlike few of them were their mothers 6.5%.

Table 3: Personal factors associated with dysmenorrhea among female medical students

Variable	Category	frequency	Percentage
Age at menarche	<12	18	6.9
	12-14	98	37.8
	15-16	116	44.8
	>16	27	10.4
	Total	**259**	**100**
Experience periods every month	Yes	241	93.1
	No	18	6.9
	Total	**259**	**100**
How long is the monthly period	1-2 days	9	3.5
	3-4 days	188	72.6
	5-6days	62	2.4
	>7 days	0	
	Total	**259**	**100**
How long is the menstrual cycle	<21days	16	6.2
	21-35days	231	89.2
	>35days	12	4.6
	Total	**259**	**100**
Is your cycle regular	Yes	196	75.6
	No	63	24.3
	Total	259	
If you do not experience periods every month, do you take drugs for any chronic illness	Yes	7	38.9
	No	11	61.1
	Total	**18**	**100**
Do you have any relative who experience pain during menstruation	Yes	161	62.2
	No	98	37.8
	Total	**259**	**100**
If yes, who is the relative	Mother	11	6.8
	Sister	107	66.5
	Cousin	35	21.7
	Others	8	49
	Total	**161**	**100**
Do you think life at campus/work is stressing	Yes	232	89.6
	No	27	10.4
	Total	**259**	**100**
How do you rate stress experienced at work/campus	Low	27	11.6
	Moderate	151	65
	Severe	54	23.3
	Total	**232**	**100**

Among all life style factors, participants those who consume alcohol were 16.6% and those who did not consume alcohol were 83.4%.
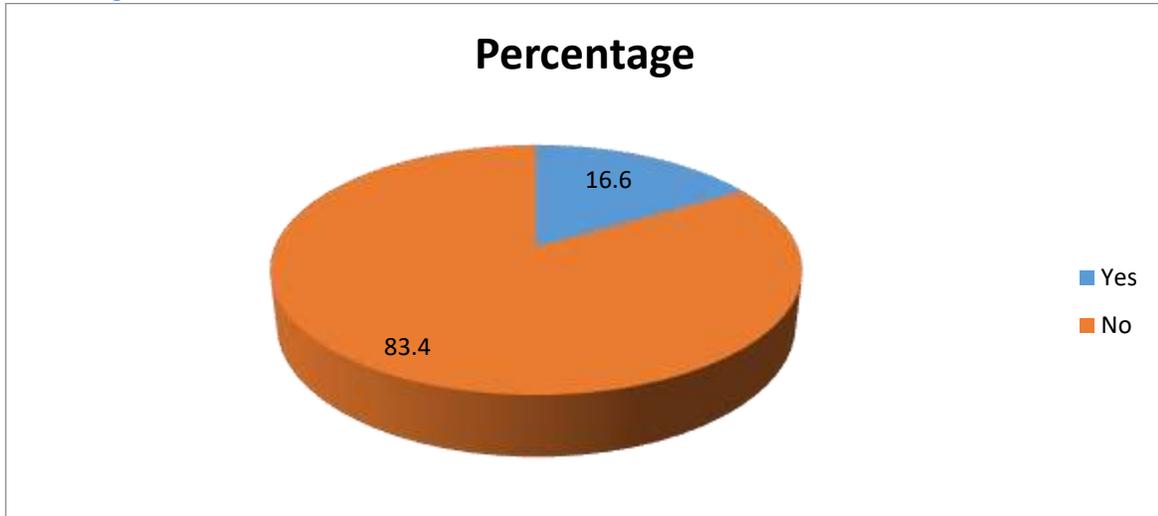
Percentage

Figure 4: Consumption of alcohol

79.1% of the respondents had services of alcohol 1-2 per week, 20.9% had 3-4 per week and none among the respondents served alcohol between 5-6 and 7 day per week.
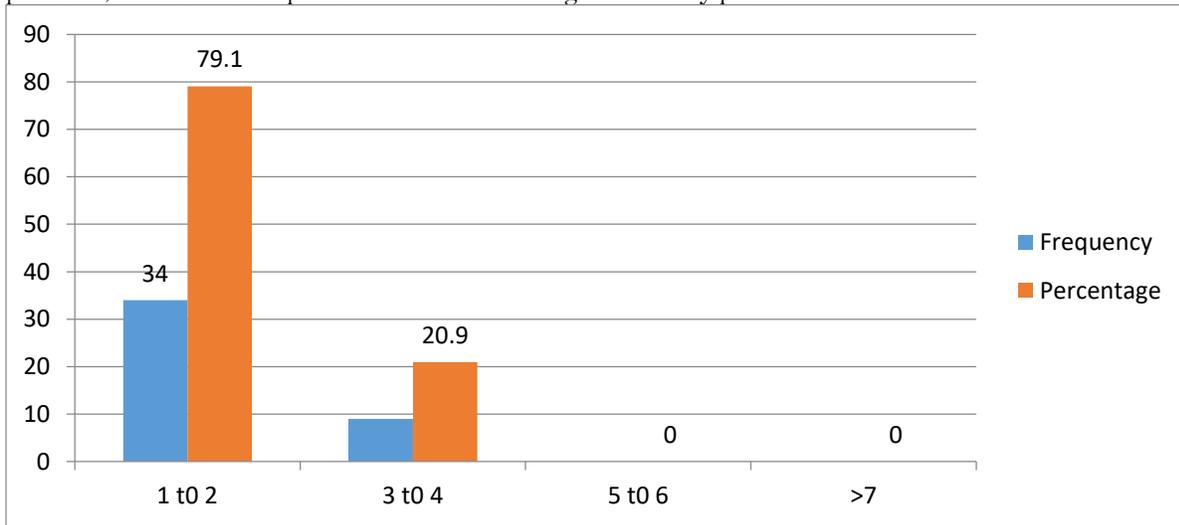

Figure 5: Services of alcohol

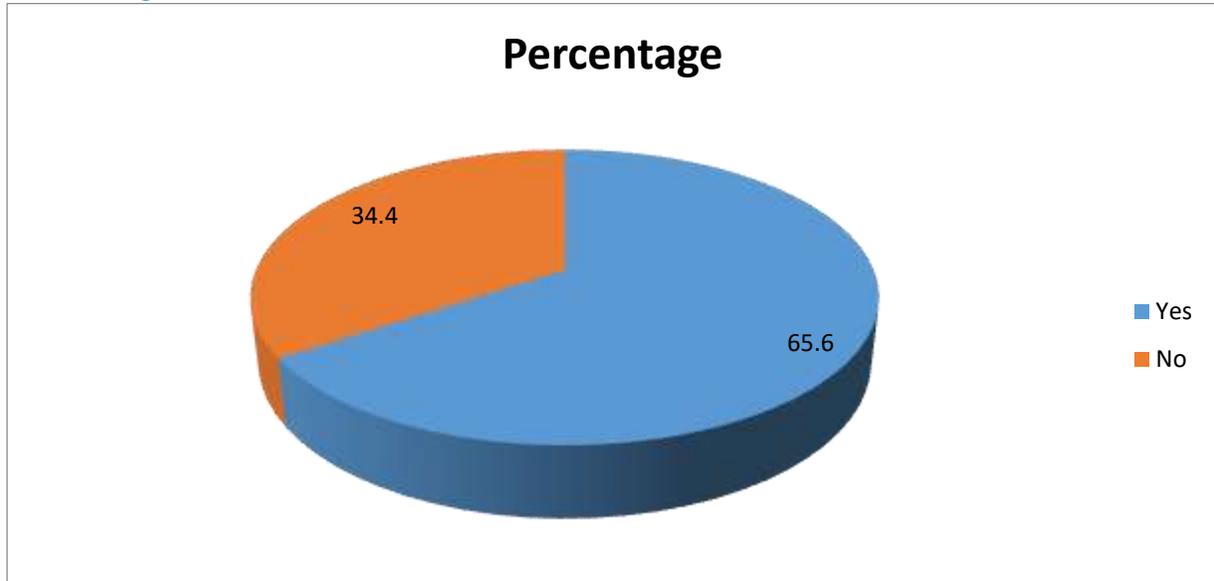65.6% of the respondents consumed coffee while 34.4% did not consume coffee.

Percentage

Figure 6: Consumption of coffee

Those who consume coffee 90.6% took 1-3 cups of coffee per day, 9.4% took 4-6 cups of coffee per day only none of the respondents took 7-9 and >10 cups of coffee per day.
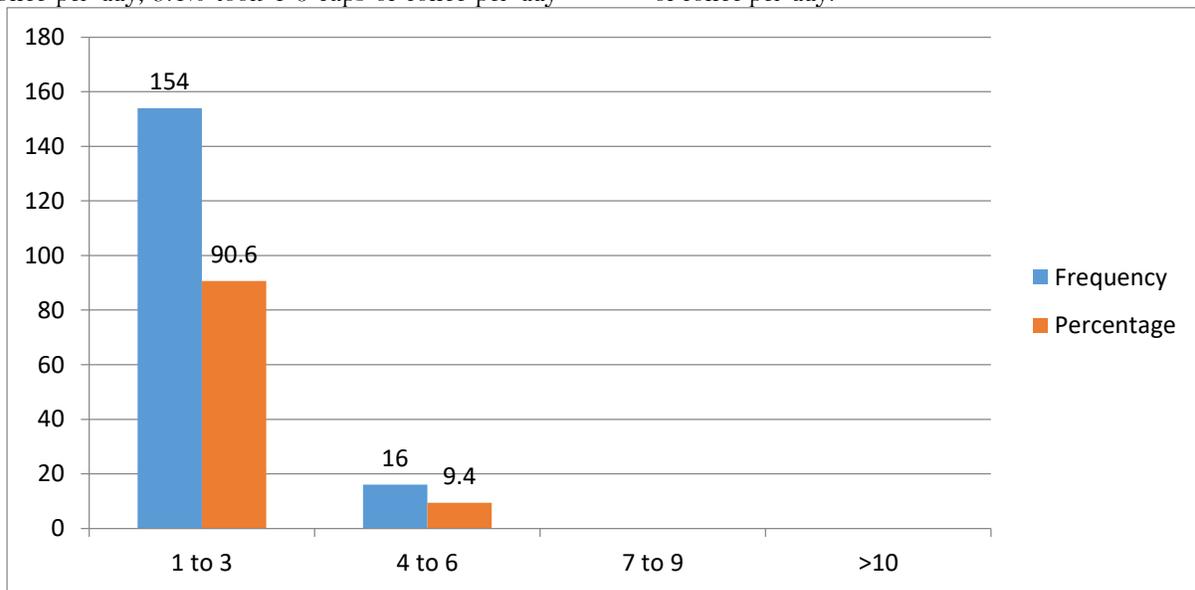

Figure 7: Cups of coffee taken per day

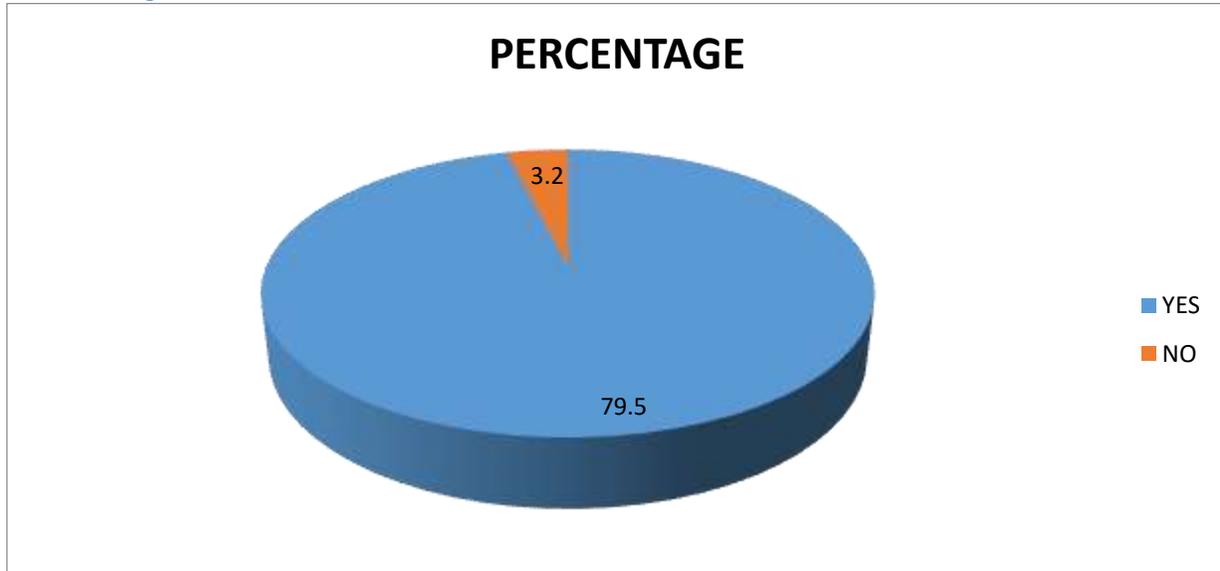79.5% of the respondents took sugar unlike 3.2% did not.

PERCENTAGE

Figure 8: Consumption of sugary

Majority of respondents, 50.9% take sugar in tea, 3.4% take sugar in Ice Cream, 2.4% take sugar in chocolate, 8.7% take sugar in sweets unlike 21.4% take all contents which contained sugar.
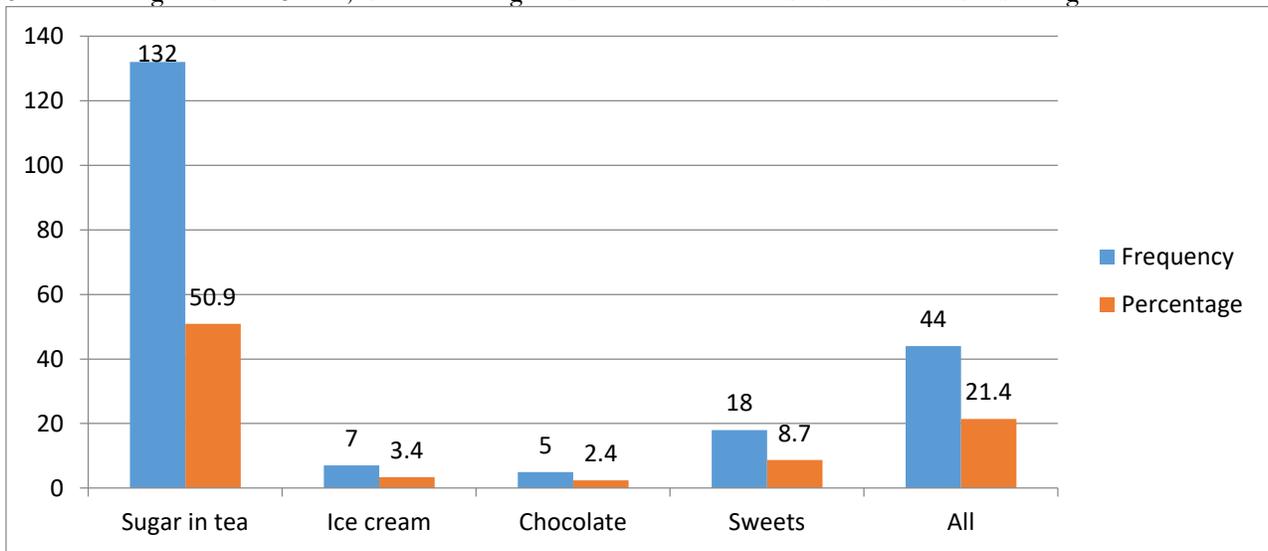

Figure 9: Consumption of sugary foods

Participants who didn't smoke cigarettes or shisha were 90.7% while 9.3% smoked cigarettes or shisha.
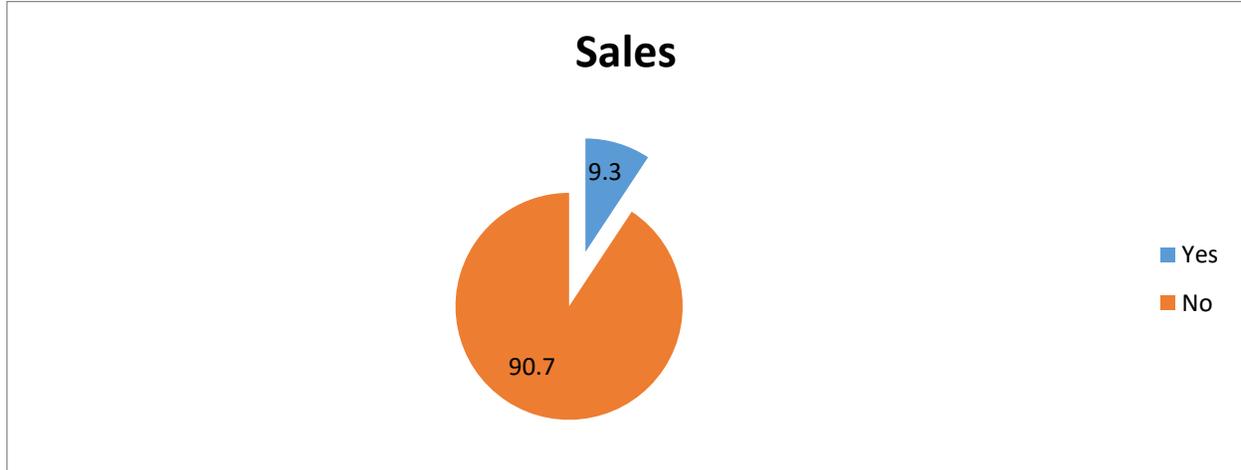
Sales

9.3

Yes

No

90.7

Figure 10: smoking of cigarettes or shisha

Among the respondents who said we make exercise were 37.8%, while 62.2% of the respondents didn't make exercise regularly.
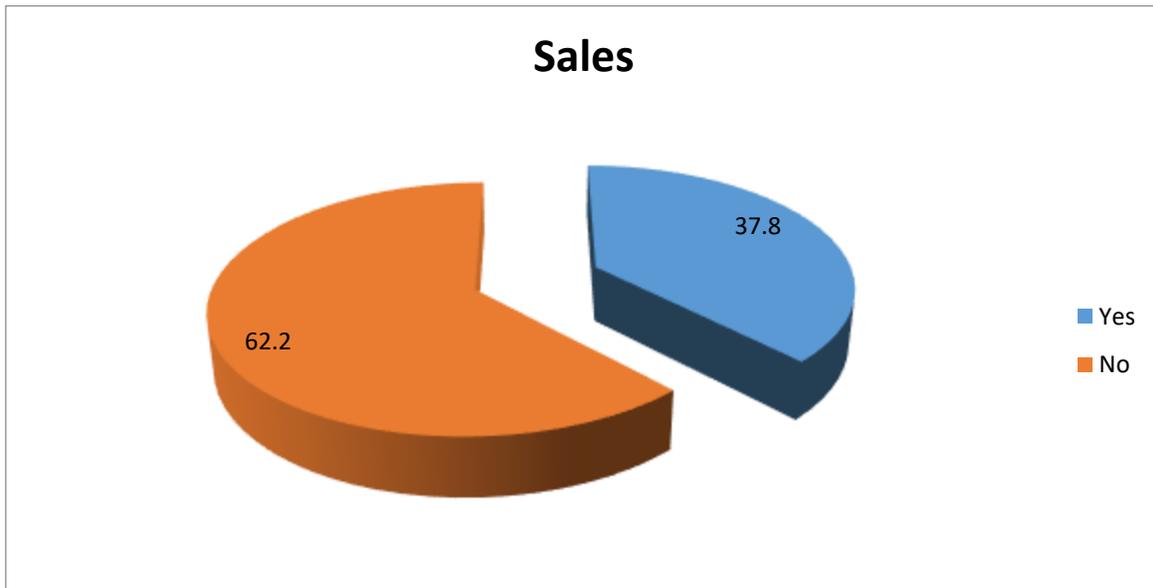
Sales

37.8

Yes

No

62.2

Figure 11: Doing exercise regularly

Most of participants 44% do exercises 6-7 days per week, 27% do exercised between 27% per week, 18% do exercised between 4-5 days unlike 9% do exercises a day per week.
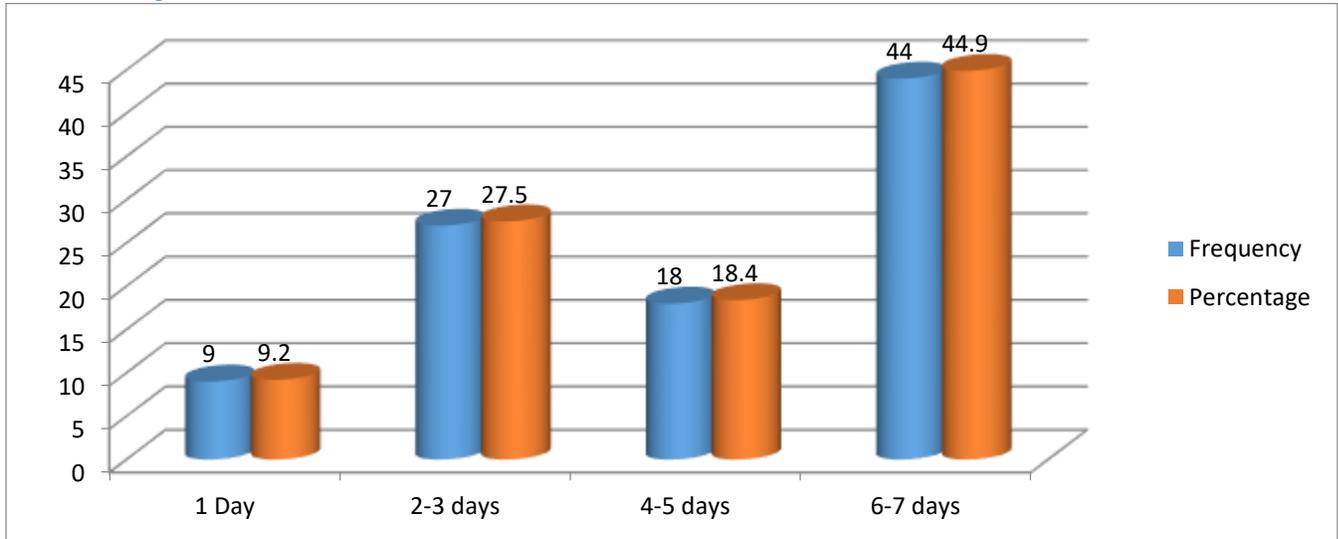
Figure 12: Whether there are regular exercises

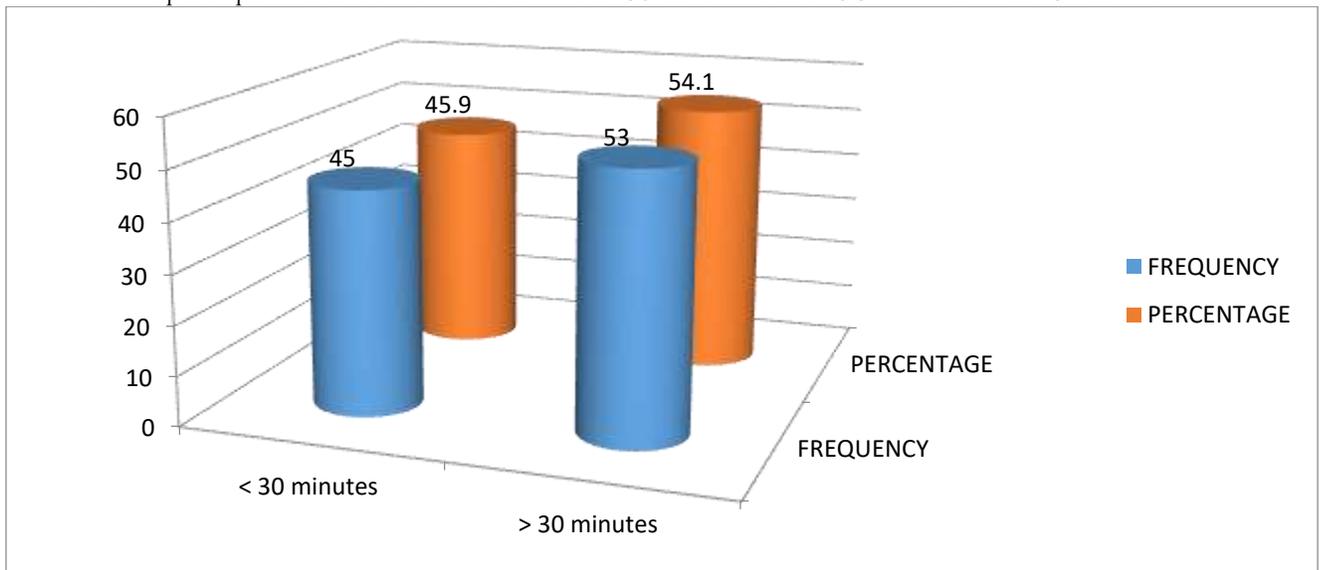Most of participants their exercise took more than 30 minutes unlike 45.9% took less than 30 minutes.

Figure 13: Duration of the exercise

Table 4 Bivariate and Multivariate Analysis of factors associated with Dysmenorrhea among female Students at Kampala International University western Campus

Variables		COR(95% CI)	AOR(95% CI)
History of anxiety	Yes	8.89 (5.95, 13.27)	4.08(2.31, 7.19)*
	No	Ref	Ref
Premenstrual syndrome	Yes	3.84 (2.56, 5.77)	5.20(2.82, 9.61)*
	No	Ref	Ref
Age at menarche	≤12 years	7.63(4.57, 12.73)	4.67(2.33, 9.37)*
	13–14 years	5.05(3.28, 7.78)	4.25(2.35, 7.69)*
	≥15 years	Ref	Ref
Physical exercise	Yes	0.40(0.28, 0.59)	1.54(0.87–2.73)
	No	Ref	Ref
Menstrual regularity	Yes	0.48(0.34, 0.69)	1.72(0.94–3.15)
	No	Ref	Ref
Consumption of glass tea	<4 glass	2.71(1.32, 5.55)	3.04(1.23, 7.51)*
	≥4 glass	11.31(4.34, 29.47)	5.69(1.49, 21.77)*
	Not at all	Ref	Ref
Student's monthly pocket money	<20k-40k	2.21(1.32, 3.71)	1.74(0.79–3.86)
	60k and above	2.85(1.70, 4.77)	1.22(0.56–2.64)
	>50k	Ref	Ref
Duration of menstruation	>7 days	0.46(0.26, 0.83)	0.93(0.48–1.78)
	3–7 days	0.29(0.20, 0.43)	0.42(0.17–1.03)
	< 3 days	Ref	Ref
Usually of fat, Sugar and oil food	Yes	7.52(5.08, 11.1 3)	2.03(1.15, 3.59)*
	No	Ref	Ref
Usually use of meat	Yes	8.13(5.45, 12.13)	3.61(2.03, 6.39)*
	No	Ref	Ref

History of anxiety, physical exercising, menstrual regularity, eating of highly fat and oil diet, meat eating, vegetable and fruit eating, tea taking, students mother education, average monthly pocket money of students, age at menarche, duration of menses were significantly associated with dysmenorrhea in bivariate logistic regression analysis. All these variables with a p-value of < 0.25 in the bivariate analysis were entered to multivariable logistic regression analysis.

In multivariable analysis; history of anxiety, eating high fat and oil diet, meat eating, consumption of tea, age at menarche and premenstrual syndrome were the factors independently associated with dysmenorrhea. Participants who had history anxiety had 4.08 increased odds of dysmenorrhea as compared to who had no history of anxiety (AOR=4.08, 95% CI 2.31–7.19). Students who have seen their first menses (menarche) at the age less than or equal to 12 years had 4.67 increased odds of dysmenorrhea as compared with age of menarche greater than 15 (AOR=4.67, 95% CI 2.33–9.37). Participants who usually consume high sugar, oil and fat diet had 2.03 had increased odds of dysmenorrhea as compare to those who have not usually consume fat and oil containing food (AOR=2.03, 95% CI 1.15–3.59).

Participants who usually eat foods prepared from meat had 3.61 times higher odds of developing dysmenorrhea (AOR=3.61, 95% CI 2.03–6.39). Dysmenorrhea was 5.69 times more likely in participants consuming more than or equal to four glasses of tea per day compared with participants who did not consume tea at all (AOR=5.69:95% CI 1.49, 21.77), whereas students who consume less than four glasses of tea per day had 3.042 times more likely to dysmenorrhea when compared to that of non-consumers (AOR=3.04:95% CI 1.23, 7.51).

DISCUSSION

Among the respondents 68.7% of the respondents said that they experience pain during their period while 31.3% of the respondents said that they don't have pain during their period. 55.1% of the respondents said that they experience pain before and menstruation while 44.9 they experience pain during menstruation. From the findings, 60.1% of the respondents use pain killers, 20.2% took a rest,

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none of respondents take minerals, 14.6% take hot water bottle and 5.1% used contraceptives. The findings are in agreement with a study conducted in northern Ghana by [7] reported that 87.1% of respondents with irregular cycles experienced dysmenorrhea and relationship existed among these two variables.

Among the respondents 6.9% had experience their firs menstrual period at age of 12, 37.8% of the respondents experience at age of 12-14, 44.8% of the respondents experience at age 15-16 while 10.4% of the respondents experience at age of 16. The findings are in relation with a cross sectional study by [11] assessed dysmenorrhea and its associated factors among secondary students in eastern Ethiopia it was found that early age at menarche of <12 years was significantly associated with dysmenorrhea whereby 66.9% of these experienced the disorder. Another study carried out to evaluate the biological and socio demographic factors affecting dysmenorrhea in female patients at emergency department –Istanbul hospital, it was found that a significant correlation exists between age at menarche and age of dysmenorrhea onset with 77.2% of participants reporting that the pain started between 12-16 years.

Majority of the respondents 93.1% said yes that they experience their periods every month while 6.9% of the respondents said no that they don't experience their periods every month. Among the respondents who had 1-2 days menstrual period in month were 8%, those who had 3-4 days were 33%, and those who had 5-6 days were 3.5%, 72.6% were those who had 3-4 days, 2.4 had 5-6 days none of respondents have 7 days and above. From the above findings, students who have irregular menstrual cycles were approximately two times more likely to experience dysmenorrhoea. This can be obviously due to the hyper production of prostaglandins by the endometrium, which results in increased uterine contractions and arterial vasoconstriction, causing ischaemic pain.

The finding is in agreement with [15], in a study to assess for dysmenorrhea and related disorders it was reported that dysmenorrhea often existed in longer menstrual bleeding duration. In a study whose aim was to determine the prevalence of primary dysmenorrhea, its intensity and associated factors among Female Students at High Schools of Wolaita Zone, Southern Ethiopia, it was reported that students whose menstrual flow was long were likely to develop primary dysmenorrhea 2.72 times compared to those who had a shorter duration. However, in other study conducted in northern Ghana, it was found that menstrual duration or flow

level do not influence the severity of dysmenorrhea [7].

Among all life style factors, participants those who consume alcohol were 16.6% and those who did not consume alcohol were 83.4%. 79.1% of the respondents had services of alcohol 1-2 per week, 20.9% had 3-4 per week and none among the respondent's served alcohol between 5-6 and 7 day per week. 65.6% of the respondents consumed coffee while 34.4% did not consume coffee. Those who consume coffee 90.6% took 1-3 cups of coffee per day, 9.4% took 4-6 cups of coffee per day only none of the respondents took 7-9 and >10 cups of coffee per day.79.5% of the respondents took sugar unlike 3.2% did not. Participants who didn't smoke cigarettes or shisha were 90.7% while 9.3% smoked cigarettes or shisha. Among the respondents who said we make exercise were 37.8%, while 62.2% of the respondents didn't make exercise regularly. Most of participants 44% do exercises 6-7 days per week, 27% do exercised between 27% per week, 18% do exercised between 4-5 days unlike 9% do exercises a day per week. Most of participants their exercise took more than 30 minutes unlike 45.9% took less than 3o minutes. The above findings are in agreement with a cross sectional study carried out by [16] to estimate the prevalence of dysmenorrhea among Turkish university students studying in the field of health sciences it was found that alcohol consumption and dysmenorrhea had no a significant difference at a p-value > 0.05.

Also [17] found no relationship between alcohol consumption and dysmenorrhea. Another study to evaluate whether and to what extent alcohol consumption is related to dysmenorrhea and age at menarche among university students in north china, it was reported that there was no relationship between alcohol consumption and dysmenorrhea however the same study revealed that a positive correlation existed between alcohol consumption and dysmenorrhea among students whose average age of menarche was≥13 years.

Majority of respondents, 50.9% take sugar in tea, 3.4% take sugar in Ice Cream, 2.4% take sugar in chocolate, 8.7% take sugar in sweets unlike 21.4% take all foods which contained sugar. Excessive sugar intake creates pain in the menstrual cycle. This was also represented at Kampala International University in which dysmenorrhoea was three times higher among students with excessive sugar intake. This might be explained by the high sugar content compromises the absorption and metabolism of important vitamins and minerals, causing a muscle spasm, which can be manifested by menstrual pain. Besides, it may be a result of the precursors of prostaglandins, which are the cause of

dysmenorrhoea, which might be found in sugar-containing meals.

The findings further are in agreement with a cross sectional study by [10] whose aim was to determine factors influencing the prevalence of dysmenorrhea among students in institutions of higher learning in Kampala, it was reported that after a bivariate analysis, daily consumption of sugary foods was significant factor for dysmenorrhea at a p-value of 0.038. Another study conducted to determine the prevalence of dysmenorrhea, effects on school activities, and associated school absenteeism among secondary school girls in Ibadan, Nigeria it was found reduction of sugar intake was the most used method to prevent or relieve menstrual pain was to reduce sugar intake [18].

CONCLUSION

Dysmenorrhea was a common problem among female medical students at Kampala International University. The overall prevalence of it was high and negatively affected the students' daily activities. However, only a few students sought medical advice for their menstrual pain. History of anxiety, early menarche, premenstrual syndrome, tea consumption, usually use of fat, sugar and oil contain food and usually meat eaters were significantly associated to the occurrence of Dysmenorrhea. University should provide accessible and appropriate medical treatment and counseling service for dysmenorrhea affected students. The University should establish recreational centers and promote females to increase their habits of physical activities. Lecturers should provide academic support for the affected students. Similar university longitudinal studies are advantageous to establish causal relationship of factors and better to include all academic year students to establish generalization.

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