

VOL. 31 (2) (D), DECEMBER 2005

Special issue on Labour and Employment

University of Dar es Salaam

TANZANIA JOURNAL OF SOCIOLOGY

ISSN 0856-1761

Published by Faculty of Arts,
University of Dar es Salaam

TANZANIA JOURNAL OF SCIENCE

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Tanzania Journal of Science 47(1): 10-18, 2021
ISSN 0856-1761, e-ISSN 2507-7961
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Perceived Risk Factors of Dysmenorrhea among Female Undergraduates in University of Ilorin, Ilorin, Nigeria

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Received 29 Sep 2020, Revised 11 Dec 2020, Accepted 28 Dec 2020, Published Feb 2021

Abstract

Dysmenorrrhea is one of the leading causes of school absenteeism among female undergraduates in University of Ilorin, Nigeria. Therefore, the study investigated the perceived risk factors of dysmenorrhea among female undergraduates in the University of Ilorin, Nigeria. Descriptive research design of survey type was used for the study. Population for this study comprised of female undergraduates in the University of Ilorin for 2018/2019 academic session. Multi-stage sampling technique of simple, proportionate, purposive and convenience sampling techniques were used to select 263 respondents that participated in the study. The researcher developed a questionnaire which was validated by 3 experts from the field of health educator and community medicine was used for the study. Degree of consistency of the instrument used for the study was confirmed through test-re-test approach and result of r = 0.82 obtained. Non-parametric statistics of Chi-square was used to test the hypotheses formulated for the study at 0.05 alpha level. The findings of the study indicated that stress and high intake of sugar were risk factors for dysmenorrhea among female undergraduates in the University of Ilorin (Chi- square value of 83.45, p = 0.000 with 9 df, (Chi- square value of 64.06, p = 0.001 with 9 df). The researchers concluded that the inability to manage stress among female undergraduates and high intake of foods containing excessive sugar were risk factors of dysmenorrhea among female undergraduates at the University of Ilorin. The researchers recommended that the school authority management should organize stress seminars and campaigns to help address stress problems experienced by female undergraduates in the University of Ilorin. Also, the university authority should organize enlightenment campaigns that will educate undergraduates on the risks involved in the consumption of unhealthy foods which contain excessive sugar such as biscuits or snacks to reduce pains experienced by female undergraduates in the University of Ilorin, during the menstrual period.

Keywords: Risk Factors, Dysmenorrhea, Stress, Female, Undergraduates.

Introduction

Menstruation is the periodic or cyclical building and breakdown phenomena which results in bleeding from the uterus. It is a physiological process which helps to get rid of the unusual lining of the uterus so that a new lining may appear from the basal layer. Dysmenorrhea or painful menstruation is a

condition that disrupts daily functioning of young ladies and women. Painful menstruation may be primary when it dates back to the early menstruation of the young girl which usually occurs during day one of the menstrual flow, or it may be secondary when after some years of painless menstruation, the women develop pain some few days before the onset of the menstrual flow or during the periods (MedlinePlus 2016). The secondary condition indicates underlying disease located in some organ in the woman's lower abdominal or pelvic cavity which results in pain on the affected women, and the secondary condition is usually common among older women. The symptoms of painful menstruation usually become less severe as age advances and may cease to persist after age thirty or it may be cured quite earlier by pregnancy resulting in vaginal delivery (Osula 1993)

Discomfort experienced by young ladies and women in relations with menstrual cycles is referred to as dysmenorrhea. Ju et al. (2014) opined that dysmenorrhea is usually characterized by extremely painful feelings at the lower extremity which present conditions such as faintness, vomiting, headache and nausea which occur either before or during menstrual cycles. Menstrual discomfort is in two forms; primary condition which occurs without apparent clinical conditions but it was due to excessive production of 'prostaglandin', the condition common among young ladies. The secondary condition which occurs due to apparent clinical conditions such as pelvic inflammatory disease, fibroids, endometriosis or presence of an intrauterine device, the secondary condition of dysmenorrhea is common among older women. Dysmenorrhea is rampant among reproductive-age women worldwide and it hurts the health and well-being of young ladies and women (Loto et al. 2008).

One of the major gynaecological conditions that hurt women's health and productivity is dysmenorrhea. This condition is responsible for the causes of both school and job irregular attendance by young ladies and women. Most girls and women affected with the condition fail to seek medical care in the hospital despite its negative effects on their health (Gagua et al. 2012). About 60% of childbearing age women experience dysmenorrhea condition which harms social and economic activities of young women. The condition is responsible for losing part of their active working hours and it is also responsible for irregular attendance of girls in schools due to pains or changes in mood experienced by young ladies during an episode of dysmenorrhea (Bajalan et al. 2019).

Wang et al. (2004) explained that one of the most widespread gynaecological problems affecting childbearing age women is dysmenorrhea which varies among different populations. About 10-15% of reproductive age women lose their work, have poor school performance due to irregular attendance, and suffer from bodily discomfort due to dysmonorrhea. The results of a study conducted by Yesuf et al. (2018) among 246 Makelle University health science female students, indicated that the rate of students experiencing menstrual discomfort was more than 70%, and students with a family history of the condition experience excess menstrual flow, excess time for menstrual interval and alcohol users likely to experience menstrual discomforts. The result of the study conducted by Singh et al. (2008) among first and second-year female undergraduate science students in India indicated that more than thirty-one per cent of the students skipped school and classes due to menstrual discomforts. Dysmenorrhea affects the social, psychological and physical status of female adolescents in the study area.

The major factor in the environment which affects human health and cause illness or death today more than anything else is stress which individuals encounter on daily basis. The ways individuals attempt to either avoid or solve their psychological problems

determine the possibility of solving the stress of life. The results of a study conducted by Wang et al. (2004) among 388 newly married women, who intended to get pregnant, showed that the risks of menstrual discomforts were more among women with higher stress than those with low stress. The results further indicated that the problems of menstrual discomforts are higher among women with high stress, family history of the menstrual discomforts than those with low stress and no history of dysmenorrhea.

Food is a nutritive material which when taken furnishes the body with heat and energy, regulates body functions, promotes body growth, repairs body tissue and also assists in the regulation of body processes (Meg 2016). Gagua et al. (2012) pointed out that there is a connection between rates of sugar consumption with the occurrence of menstrual discomforts. High intake of sugar affects the absorption and metabolism of body nutrients which is causing nutritional imbalance and this results in muscle tremors due to disorders in muscle functioning. Results of the study conducted by Najafi et al. (2018) among 293 undergraduate students of the medical college in the West Azarbaijan Province Iran revealed that the frequency of dysmenorrhea among the respondents used for the study was 74.3%. Research indicates that diets characterized by high sugar intake, salty foods, candy, coffee, salts, liquid fruit juice are correlated with increased risks of dysmenorrhea in young people.

Dysmenorrhea is one of the disorders experienced by some female undergraduates during menstruation in the University of Ilorin, Ilorin, Nigeria. Some female undergraduates take rest and leave classes due to discomforts create by dysmenorrhea, and some may even skip lectures and classes. The difficulties experienced by undergraduates during menstruation prompted the researchers to investigate the risk factors for dysmenorrhea to provide useful suggestions that will reduce the pains and discomfort experienced by female undergraduates in the University of Ilorin, Ilorin, Nigeria.

Most women experience menstrual discomforts during adolescence age that affect their physical, mental and social well-being. The conditions responsible for the irregular attendance of female students in schools and also have negative effects on the academic and daily functioning of school girls and women. Wang et al. (2004) explained that one of the most widespread gynaecological problems affecting childbearing age women is dysmenorrhea which varies among different populations.

Dysmenorrhea is still a leading cause of school absenteeism among female undergraduates in the University of Ilorin, and a small percentage of affected students seek medical assistance. Some female undergraduates in the study area experiencing dysmenorrhea problem experience pains and discomforts for some days or month(s) before they seek treatments because they feel it is part of growing up, and this makes them miss school. The health and social problems caused by dysmenorrhea on female undergraduates in the University of Ilorin make some affected students skip lectures, classes and some miss class tests and examinations, which consequently have negative impacts on the academic performance of the affected students. Hence, the needs for the study on risk factors for dysmenorrhea among female undergraduates in the University of Ilorin, Ilorin, Nigeria.

Arief et al. (2017) opined that nicotine in woman significantly reduces the effects of endometrial blood flow. This may be explained the relationship between passive smoking and primary dysmenorrhea. The heavy smokers have the highest increasing levels of prevalence and severity of period pains. It has been suggested that quitting smoking and staying away from second hand smoke might be favourable for woman who are at risk of dysmenorrhea. Ferri (2016) stated that, in women who have symptoms of fibroids; the most common symptoms of

uterine fibroids are heavy menstrual bleeding, menstrual period lasting more than a week. Submucousal fibroids may cause dysmenorrhea. The objectives of the study were as follows: (i) To investigate if stress experienced by students while in school constitutes a risk factor of dysmenorrhea among female undergraduates in the University of Ilorin, Nigeria; (ii) To examine if high intake of sugar among students constitutes a risk factor of dysmenorrhea among female undergraduates in the University of Ilorin, Nigeria.

Research Hypotheses

The hypotheses formulated for the study were:

HO_1: Stress is not significantly a risk factor of dysmenorrhea among female undergraduates in the University of Ilorin, Ilorin, Nigeria.

HO_2: High intake of sugar is not significantly a risk factor of dysmenorrhea among female undergraduates in the University of Ilorin, Ilorin, Nigeria.

Methods and Materials

Study area

The study was carried out at the University of Ilorin, Ilorin, Nigeria. The University of Ilorin is located in Ilorin, the capital city of Kwara State on latitude 8.4799° N and longitude 4.5418° E, covering an approximate land mass of 5,000 hectares. The University of Ilorin is located at about 491.5 km apart from the Nigeria national capital (Abuja), and about 329.1 km away from the Nation's economic capital (Lagos). The University now possesses staff strengths of about 4,474, with over 58,000 undergraduates and over 5,000 postgraduate students in 90 academic programmes across fifteen (15) faculties. Furthermore, the school of Preliminary Studies with Remedial and JUPEB programmes has over 3600 students. The University of Ilorin is one of the foremost universities in the sub-Saharan African with uninterrupted academic programmes for over 16 years. Its products have excelled in several sectors nationally and internationally (University of Ilorin Registrar Office 2018).

Participants

The study population was made up of female undergraduates registered for 2018/2019 academic session which comprised of twenty-one thousand, eight hundred and twenty-one (21,821) students in the University of Ilorin, Ilorin, Nigeria. The target population comprised of all the thirteen thousand one hundred and eleven (13,111) female undergraduates from five (5) selected faculties in the University of Ilorin, Ilorin, Nigeria. Multi-stage sampling approaches that were made up of simple, proportionate, purposive and convenience sampling techniques were used for the study. The first stage employed a sampling technique of simple random used to pick five (5) faculties out of fifteen (15) faculties in the study area by using simple ballot technique. The faculties chosen were as follows: Agriculture, Communication and Information Science, Education, Management Science and Faculty of Social Science. In Stage two, proportionate sampling technique was used to select two per cent of the population in five (5) selected faculties based on their populations. Stratified proportionate sampling technique was a method of sampling technique that ensured that each stratum has equal sampling representation based on their population. In the third stage, purposive sampling technique was used to pick only undergraduate female students from the five selected faculties. The fourth stage, convenience sampling used to choose 400 level undergraduates students during their faculties' lessons, and the numbers selected were based on 2% population of the selected faculties. The number of students participated from the chosen faculties were as follows; Faculty of Agriculture 66, Faculty of Communication and Information Science 16, Faculty of

Education 116, Faculty of Management Science 39 and Faculty of Social Science 26. Two hundred and sixty-three (263) respondents participated in the study. The 400 level undergraduates' students from the five faculties were selected for the study.

Table 1: Distribution of the samples selected and used for the study

S/N	Name of faculty	The population of female undergraduates	2% of the population (sample)	Population of sample
1.	Agriculture	3275	65.5	66
2.	Communication and Information Sciences (CIS)	783	15.66	16
3.	Education	5792	115.84	116
4.	Management science	1958	39.16	39
5.	Social science	1303	26.06	26
Total		**13111**	**262.22**	**263**

Source: University of Ilorin Registrar Office (2018).

Measures and procedures

Researchers' developed questionnaire validated by three experts in related fields was the instrument used for the study. Test-re-test method was used to establish the reliability of the instrument. Twenty (20) copies of the questionnaire were administered on twenty (20) female undergraduates in the Faculty of the Engineering and Technology, University of Ilorin which was not part of faculties selected for the study. Two weeks after, the instrument was re-administered. The findings were calculated and correlated using Pearson Product Moment Correlation Coefficient. A reliability coefficient of r = 0.82 was obtained which was considered high enough and this made the research instrument reliable for the study. The researchers administered the instrument with the help of three trained research assistants.

Data analysis

Non-parametric statistics of Chi-square was used to test the null-hypotheses postulated for the study at 0.05 alpha level using IBM/Statistical Package for Social Sciences (SPSS) version 25.0 version.

Results

The results obtained from the two hypotheses used for the study are shown in Table 2 and Table 3.

HO_1: Stress is not significantly a risk factor of dysmenorrhea among female undergraduates in the University of Ilorin, Ilorin, Nigeria.

Table 2 shows the calculated Chi-square value of 83.45 and p-value of 0.000 with 9 degrees of freedom at 0.05 level of significance. Since the p-value of 0.000 is less than 0.05, therefore, the hypothesis (HO_1) is not accepted. This implies that stress is a risk factor of dysmenorrhea among female undergraduates' in the University of Ilorin, Nigeria.

Table 2: Stress as a risk factor of dysmenorrhea among female undergraduates in the University of Ilorin, Ilorin, Nigeria

S/N	Statement	SA	A	D	SD	df	Cal. Value	P- Value	Remarks
1	Stress experienced by Female undergraduates put them at risk of dysmenorrhea	140 (53.2%)	106 (40.3%)	17 (6.5 %)	0 (0.0 %)				
2	Feeling stressed during the monthly period worsen the symptoms associated with dysmenorrhea	139 (52.9%)	110 (41.8%)	10 (3.8%)	4 (1.5%)				
3	Feeling stressed a few days before the menstruation leads to severe symptoms of dysmenorrhea	96 (36.5%)	100 (38.0%)	52 (19.8 %)	15 (5.7%)	9	**83.45**	**0.000**	**HO_1 rejected**
4	Feeling stressed a few weeks before the monthly flow leads to moderate symptoms of dysmenorrhea	122 (46.4%)	123 (46.8%)	15 (5.7%)	3 (1.1%)				
	Column Total	**497**	**439**	**94**	**22**				

P < 0.05; SA = Strongly Agree, A = Agree D = Disagree, SD = Strongly Disagree.

HO_2: High intake of sugar is not significantly a risk factor of dysmenorrhea among female undergraduates in the University of Ilorin, Ilorin, Nigeria.

Table 3 shows the calculated Chi-square value of 64.06 and p-value of 0.001 with 9 degrees of freedom at 0.05 level of significance. Since the p-value of 0.001 is less than 0.05, therefore, the hypothesis (HO_2) is not accepted. This indicates that a high intake of sugar is a risk factor of dysmenorrhea among female undergraduates in the University of Ilorin, Nigeria.

Table 3: High intake of sugar as a risk factor of dysmenorrhea among female undergraduates in the University of Ilorin, Nigeria

S/N	Statement	SA	A	D	SD	Df	Cal. Value	P-Value	Remarks
1	Excessive intake of sugary drinks leads to dysmenorrhea	140 (53.2%)	97 (36.9%)	16 (6.1%)	10 (3.8%)				
2	Taking fruit juice with high sugar leads to dysmenorrhea	92 (35.0%)	143 (54.4%)	20 (7.6%)	8 (3.0%)				
3	Daily intake of snacks for a longer period worsens the symptoms associated with dysmenorrhea	172 (65.4%)	80 (30.4%)	11 (4.2%)	0 (0.0%)				
						9	**64.06**	**0.001**	**HO_2 rejected**
4	Eating sweet food products before the menstrual period worsens the symptoms associated with dysmenorrhea	141 (53.6%)	90 (34.2%)	27 (10.3%)	5 (1.9%)				
	Column Total	**545**	**410**	**74**	**23**				

P < 0.05; SA = Strongly Agree, A = Agree D = Disagree, SD = Strongly Disagree

Discussion of Findings

The results of the first hypothesis showed that stress was a risk factor of dysmenorrhea as professed by female undergraduates at the University of Ilorin. This finding could be attributed to the fact that some undergraduate students in the University of Ilorin found it difficult to adjust to academic and environmental changes they experienced while in school which differs from what they experienced at the secondary school and this constitutes stress for them, failure to manage it may lead to health disorders of which dysmenorrhea is among. The findings corroborate with the results of a study conducted by Wang et al. (2004) among three hundred and eighty-eight newly married women who intended to get pregnant. The study showed that the risks of menstrual discomforts were more among women with higher stress than those with low stress. The results further that the problems of menstrual discomforts are higher among women ,with high stress, family history of the menstrual discomforts than those with low stress and no history of dysmenorrhea. Also, the findings corroborate with the opinion of Ertiana et al. (2016) who explained that stress influences menstrual functions through activating hypothalamic-pituitary-gonadal axis. The activation causes menstrual disorders such as irregular menstrual patterns and dysmenorrhea. Stress can also disrupt the activities of the endocrine system when

myometrium in phase secretion produces prostaglandin which causes contraction of smooth muscles that can cause dysmenorrhea. There is a relationship between psychological stress and dysmenorrhea.

Results of hypothesis two revealed that high intake of sugar is a risk factor of dysmenorrhea as professed by female undergraduates in the University of Ilorin. The findings carved around the fact that some undergraduate students in the University of Ilorin loved to take sweetened foods such as snacks, biscuits, soft drinks, yoghurt and doughnut while on campus. Consumption of these foods for a longer period may hurt the health of students adversely. The findings support the view of Bethany and Lori (2019) who opinioned that monthly menstrual period usually accompanied by many symptoms which include fatigue, change in mood, bloating and pains. The symptoms are even worse for some people due to taking foods that increase their pains and discomforts. Some foods which contributed negatively to menstrual discomforts among women of childbearing age are; excess sugar intake, excess caffeine, excess dairy products, excess fatty foods, excess processed foods excess chocolate and excess salts. Excessive intake of any of the food items identified earlier can cause narrowing of blood vessels, inflammation and can also cause uterus contraction due to the production of more prostaglandins. To avoid the problems, women of childbearing age should avoid taking any of the foods listed a week before and during the menstrual period. Also, the findings agree with the opinion of Gagua et al. (2012) who pointed out that there is a connection between rates of sugar consumption with the occurrence of menstrual discomforts. High intake of sugar affects the absorption and metabolism of body nutrients leading to nutritional imbalance and this result in muscle tremors due to disorders in muscle functioning. More so, the findings of the study support the results of a study conducted by Najafi et al. (2018) among 293 undergraduate students of the medical college in the West Azarbaijan Province Iran. The results indicated that the frequency of dysmenorrhea among the respondents used for the study was 74.3%. Research indicates that diets characterized by high sugar intake, salty foods, candy, coffee, salts, liquid fruit juices are correlated with increased risks of dysmenorrhea in young people.

Conclusions

The findings of the study stemmed from the data collected and analyzed with the results obtained. It was concluded that: inability of female undergraduates in the study area to manage both academic and environmental stress they were exposed to while in school put them at risk of experiencing severe pains during their monthly menstruation. Ignorant of female undergraduates in the University of Ilorin about the dangers associated with intake of foods containing excess sugar makes some female undergraduates absent from classes due to discomforts experienced during their monthly menstruation and their academic achievement negatively affected.

Recommendations

The university authority management should organize stress seminars and campaigns to help address stress problems experienced by female undergraduates in the University of Ilorin. The university authority should organize enlightenment campaigns that will educate undergraduates on the risks involved in the consumption of unhealthy foods which contain excessive sugar such as biscuits or snacks to reduce pains experienced by female undergraduates during the menstrual periods.

Conflict of Interest

The authors declare no conflict of interest.

Authors' contributions

Ibrahim Ologele wrote the manuscript and edited the paper, Precious Daniel Oyiza formulated the questionnaire and administered the questionnaire, Ogunsola Mufutau Tijani formulated the questionnaire and checked the article for plagiarism. All the authors read and approved the final draft of the research.

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