Original Article

Life Style Among Women With Endometriosis

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DOI: 10.47750/pnr.2023.14.S01.204

Abstract

Background: Endometriosis is benign gynecological disorders that affect women during their reproductive age and negatively effects on women's lives. **Aim of the study:** Was to evaluate life style among women with endometriosis. **Study Design**: Descriptive design was used to carry out the study. **Setting:** The study was carried out at gynecological outpatient clinic of Zagazig university hospitals, Sharkia governorate, Egypt as it covers a wide range of population with different characteristics with high flow rate. **Subjects:** A purposive sample of 132 women were included in the study who meet the criteria. **Tools of data collection:** Two tools were used: a structured interview questionnaire and life style assessment questionnaire. **Results**: The presented study found that more than half of the studied women their age was >25 years with mean ±SD 32.45±5.24, the most consumed diet by nearly half of the studied women was red meat and beef, nearly half of them were under-weight and performed low level of physical activities and there was no significant relation between total life style and personal data p-value > 0.05. **Conclusion:** Majority of the studied women with endometriosis had unhealthy life style and lower percentage of them had healthy life style. **Recommendations:** Awareness raising programs about endometriosis should be encouraged, mass media campaigns have an essential role to increase awareness toward disease and reproductive health in general.

Keywords: Life style- Endometriosis.

INTRODUCTION

Endometriosis is one of the most prevalence benign gynecological illnesses affecting among 5-15% of women of reproductive age. Endometriosis is defined by the existence of endometrial tissue outside the uterine cavity, and it often leads to numerous surgeries, pelvic discomfort, adnexal mass, and infertility **(Armour et al., 2020).** The symptoms of endometriosis depend on the location of the disease. Endometriosis pain is a common symptom associated with menstruation. It includes abdominal pain, heavy period, bowel problems with rectal and anal pain, along with diarrhea and constipation. Other physical symptoms included backache, painful urination, pain on sexual intercourse, and joint pain. There were also more diffuse systemic manifestations of endometriosis, such as feeling generally unwell, malaise, fatigue and depression **(Surrey et al., 2020)**.

It can significantly impact the families, partners and careers of those with endometriosis, as well as the social and economic participation, physiological, mental and psychosocial health of those affected. Adhesions develop when scar tissue attaches separate structures or organs **(Mohamed & Hassan, 2020).**

One theory for the management of endometriosis is that dietary fat regulates the female body's prostaglandins synthesis, induce uterine spasms and alter the functioning of the ovaries. It is believed that elevated levels of prostaglandins may result in increased estrogen synthesis, which may impact the formation of endometrial tissue. Other researches reveal a correlation among high-fat diets and estrogen amounts; the female body produces more estrogen in proportion to the amount of fat in the diet. This also applies to obese women, who are quite likely to be fat if they consume a diet heavy in red meat and low in fruits and vegetables **(Farshi et al., 2020).**

Diets lacking in nutrients cause alterations in oxidative stress and lipid metabolism and induce epigenetic aberrations that play a role in the disease's origin and development. Omega3- rich foods with anti-inflammatory properties, vitamin D supplementation, increased intake of fruits, vegetables (ideally organic), and whole grains have a preventive impact, lowering the risk of disease onset **(Gad et al., 2017).**

Moving to physical activities or exercise as another factor of lifestyle, it appears that regular physical exercise has protective properties against diseases involving inflammatory processes, as it increases the systemic cytokines levels with antioxidant and anti-inflammatory properties and reduces estrogen levels. Evidence suggests that endometriosis symptoms stem from an inflammatory peritoneal response brought on by endometrial implants that have become ectopic **(Ghonemy & El Sharkawy, 2017)**.

In addition, it is known that women who engage in vigorous physical activity tend to have more light periods, lower ovarian stimulation, and decreased estrogen production. In one research which examined the relationship among intense physical activity and the likelihood of endometriosis in women, discovered that women who practiced 2.5 hours of vigorous exercise (jogging, biking, or aerobics) were 63% and have less tendency to develop endometriosis **(Huijs & Nap, 2020).**

In terms of how these activities influence the health of women in general and endometriosis in particular, it is known that physical activity produces endorphins. When physical activity is performed, it produces endorphins, which are "feel-good" chemicals. These naturally occurring hormones function as analgesics to alleviate pain. Exercising regularly reduces estrogen in the body, and the objective of endometriosis therapy is to reduce estrogen amount in order to alleviate endometriosis symptoms **(Jones et al., 2021).**

The nurses should help and support women in making lifestyle adjustments that enhance the women's health and well-being. Nurses play a crucial job in healthcare via disease management by supporting and giving lifestyle adjustment to endometriosis women and their families in order to adapt to this illness, as well as by serving as a source of follow-up. This will increase the quality of treatment to enhance the quality of life, relieve pain, and prevent future illness development **(Lerdal et al., 2018).**

Moreover, nurse should support endometriosis women to cope with this condition through providing easily accessible information & evidence based practices which include simple life style changes as diet, exercise, & pain & stress management aiming to empower women, improve quality of life, reduce pain, and prevent further progression of disease **(Horne &Pearson, 2018).**

SIGNIFICANCE OF THE STUDY:

Endometriosis is a chronic disease that is underdiagnosed, underreported, and under researched. Because of its frequency and crippling effects on young women, endometriosis is recognized as a social disease and has a significant socioeconomic burden **(Hassan, 2018).** Globally, the prevalence of endometriosis ranges from 6 to 10%, and 20 to 90% of women who have pelvic pain or infertility have the illness **(Missmer et al., 2021).**

Nevertheless, standard therapy may not always provide the intended effects on symptoms and health. In addition to conventional therapy, endometriosis women employ a variety of self-care activities and alternative treatments to manage their symptoms. These treatments include nutritional supplements, transcutaneous electrical nerve stimulation, dietary modifications, exercise, Chinese medicine and acupuncture. The treatment can be pharmacological or surgical but the correct lifestyle is also relevant **(El-Maraghy et al., 2021**). So this study was conducted to assess life style among woman with endometriosis.

AIM OF THE STUDY:

The aim of this study is to: Evaluate life style among women with endometriosis
This will be accomplished through the specific objective:-.

1-Identify life style of women with endometriosis.

Research questions:

2-What is the life style of women with endometriosis?

SUBJECTS AND METHODS

The aim of the current study was to evaluate life style among women with endometriosis. To fulfill the aim of the study and answer the research questions, the methodology was presented under the following four designs: technical, administrative, operational and statistical design.

I. Technical design:

The technical design include description of the research design, study setting, study subject and tools for data collection.

Study design:

A descriptive study design was used to conduct this study.

Study setting:

The present study was carried out at the gynaecology outpatient clinic of the Zagazig University Hospital in Zagazig, Sharkia Governorate, Egypt. This hospital was chosen because it serves as the primary teaching hospital in Zagzig and serves as the referral facility for all towns and villages in Al Sharkia, where women may access low-cost medical care. It also has a large variety of population with a significant flow of people with various features.

Study subjects:

A purposive sampling of women was included in the study. Consisted of 132 women with endometriosis attending at study setting. Sample size estimated according to the following equation at confidence level 95% **(Thompson, 2012).**

$$n = \frac{N \times p(1-p)}{\left[\left[N-1 \times \left(d^2 \div z^2\right)\right] + p(1-p)\right]}$$

Inclusion criteria:

1- All woman with endometriosis.

2 - All endometriosis stages were taken into account.

3- The number of women who agreed to take part in the study.

Exclusion criteria:

1- Women who had mental illnesses were excluded.

2-Women who attended an endometriosis education programme.

Tools for data collection:

The data of this study was collected by using two tools:

Tool I: A structured interview questionnaire:

This tool was developed by the researcher after reviewing related articles and literature as **Ansong et al (2019)** to collect data about general characteristics of women.

Tool II: Life style assessment questionnaire which was developed by the researcher after reviewing related articles as **Ghonemy et al (2017)**, **saha et al (2017)** & **youseflu et al (2020)** and included five parts: dietary habits, body mass index (BMI), physical activity, caffeine consumption, smoking status.

Content validity:

Tools were reviewed by a panel of three experts in the field of Obstetrics and gynecology nursing to test its content validity. Modifications were done accordingly based on their judgment.

Reliability:

Reliability was done by Cronbach's alpha coeffiecient test which revealed that each item of the utilized tools consisted relatively homogeneous items. The values were revealed as follow: lifestyle assessment (0.914).

Field work:

The researcher attended to the study setting three days per week from 9:30 a:m to 2:00 p:m for data collection over a period of six months from June 2022 to November 2022. The researcher started to collect the necessary data. The data were obtained from zagazig university hospitals, gynecological out patient clinic. The researcher started to collect data through two phases: interviewing and assessment phase as following:

1-Interviewing phase:

In this phase the women were asked to fill the sheet after complete explanation of the purpose of the study. The personal data such age of the women, education level, occupation status, marital status and place of residence, were obtained.

2-Assessment phase:

In this phase the studied women were assessed regarding:

- Life style which consist of five parts:

Part 1: Dietary habits which include: type of most consumed diet (red meat, fruits & vegetables, carbohydrates or mixed), way of cooking (boiled, grilled, fried or foundry) number of meals / day (1-2 meal/day, 3 meal/day, 4 or more meal/day.

Part 2: Body mass index (BMI) was calculated as weight divided by height squared (kg / m2) then BMI was classified as following: Under- weight < 18.5kg / m2. Normal weight: 18.5- 24.9 kg / m2. Increase in weight: 25-29.9 kg/ m2. Moderate obese: 30-34.9 kg/ m2. Very obese: 35-39.9 kg/ m2. Morbid obese: >40 kg/ m2.

Part 3: Physical activity: classified into three levels low, moderate and high. Type of physical activity (walking, daily house work activities and running).

Part 4: Caffeine consumption: women were asked about number of cup of coffee or tea consumed per day (1-2 cups, 3-4 cups or more than 5 cups)

Part 5: Smoking status: women were asked about type of smoking active or passive.

All data was collected by the researcher, using face to face interview, for one time. It took about 45-60 minutes (depending on women mental and physical readiness or her desire to share) to complete each interview and all women's answers were recorded in the sheet. The researcher responded to all follow-up inquiries from women and corrected any incorrect responses. Finally, instructional guideline in simplified Arabic language was giving for the participated women to be used in a later time and to help in awarding other relative personnel. The information covered nursing topics such definition, symptoms, diagnosis, complication, treatment options and dietary changes.

Pilot study:

A pilot study was carried out on a sample of 10% (13) of women. They weren't a part of the overall sample size. It was carried out to evaluate the degree of women's comprehension of the questionnaire and their willingness to participate in the study, as well as to examine the study tools' clarity, viability, and time requirements. After the pilot study, the questionnaire was rebuilt and any necessary adjustments were made to arrive at the final form.

Administrative design:

An official permission was obtained by submission of an official letter from the faculty of nursing to the responsible authorities of the study setting to obtain their permission for data collection. Nursing and medical staff responsible for caring of women were approached to gain their cooperation.

Ethical considerations:

Ethical approval was obtained from the scientific and ethics committee of the faculty of nursing, Zagazig University. The ethical code was (M.D ZU.NURS/175/17/5/2022). All ethical issues were taken into consideration during all phases of the study. The researcher maintained an anonymity and confidentiality of the subjects. The researcher introduced herself to the women and briefly explained the nature and aim of the study to every woman before participation. Permission was taken from Zagazig university hospital, gynecological outpatient clinic to conduct the study. Women were also assured that the information obtained during the study was confidential and used for the research purpose only. Oral agreement was obtained from all participant prior participation in the study.

Statistical design:

The collected data were collected, organized, coded, and statistically analyzed using Statistical Package for the Social Sciences (SPSS version 20.0). According to the type of data, quantitative data represented as frequency and percentage, quantitative continues data represented by mean ± SD. Steven Sampson equation was used to calculate sample size. Cronbach's alpha coefficient was calculated to assess reliability of scales. X2 test was used for clarifying relation between study variables. Pearson correlation was calculated to assess correlation between study variables. P- value was set at <0.05 for significant results, P- value was set <0.01 for highly significant result and P- value ≥ 0.05 was considered statistically non- significant.

RESULTS:

Table1 shows the studied women personal data. It reveals that 59.1% of them their age was >25 years with mean ± SD 32.45±5.24 years. As for education level, 44.7% of them were highly educated. In addition, 67.4% of them were wives house and 56.8% of them were from urban residence. The same table shows that, 74.2 % of them were married.

Table 2 clarifies the studied women life style regarding diet and (BMI). It shows that 46.2% of studied women consumed more red meat and beef with 48.5% of them preferred fried food. In addition to 63.6% of women consumed 1-2 meals per day. As for BMI, 45.4% of studied women were under weight.

Table 3 indicates the studied women life style regarding (Caffeine consumption, smoking & physical activity). It shows that 47.7% of them drank five or more cups of coffee/day. In addition, 75.8% of them were passive smoker, 45.5% of them had low level of physical activity in the form of daily house work activities in 65.2% of them.

Figure 1 demonstrates the studied women total life style. It illustrates that 60.6 % of the studied women had unhealthy life style while, 39.4% of them had healthy life style.

Table 4 shows that there was no significant relation between total life style and personal data (age, level of education, occupation status and place of residence of studied women). (P = 0.19, 0.07, 0.05, 0.25& 0.87 respectively).

Discussion

Endometriosis is a long-term condition that causes pain, and fatigue. It has negatively impacted many areas of women's lives, mainly day-to-day activities, mental disorders, especially depression, stress, social activities, relationships with family, work, and physical activities. It is considered that the appropriate evaluation and screening carried out by the nurse significantly facilitates the task of diagnosing, early detection of the disease, and ease the consequences of the disease. Nursing has as its main role the promotion of education, guidance, and support for women carriers **(Souza, et al., 2019).**

It is requiring a life-long personalized management plan so changing lifestyle for controlling disease themselves. Women often use complementary therapies as dietary intake and physical exercise to reduce their symptoms, maintain physical and mental health. Exercises and nutrition play a vital role in endometriosis's pathogenesis as they an effect on various processes associated with the disease, and increases patient satisfaction **(Huijs&Nap, 2020)**.

The aim of current study was to assess life style among women with endometriosis. The current study was carried out at gynecological unit at the outpatient clinic of Zagazig university hospitals as it provides care with high flow rate to large number of women all over Sharkia governorate, Egypt.

The findings of the current study were discussed under main three sections which included women general characteristics, life style of studied women and relation between studied variables.

As for personal data of the studied women, in the present study findings, nearly three fifth of the studied women were > 25 years and nearly one third of them were between 20- 25 years with a small percentage of women aged <20 years with mean ± SD 32.45±5.24 years. Concerning to education level, nearly half of them were highly educated and nearly two fifth of them were secondary educated. Furthermore more than two third of them were house wives. In addition, nearly three quarters of them were married and more than half of them were urban residents.

The study of **Mohamed et al (2021**) about effect of instructional nursing strategies on endometriosis symptoms at Ain shams university maternity hospital, Egypt was in agreement with the present study findings. The study reported that the mean age of the studied women was 32.47 ±5.42 years. As for education, 56.7% of them were highly educated, 53.3% not worked, 73.3% were married and 56.7% from urban area. This similarity could be justified by both studies carried out in the same community.

Concerning life style among the studied women, the present study findings revealed that nearly half of studied women consumed red meat and lower percentage consumed fruits & vegetables, nearly half of them preferred fried cooking and less than fifth of them preferred boiled and grilled cooking. The study of **Ghonemy & El Sharkawy, (2017)** agreed with the present study findings as in the pre intervention test 62% of women consumed red meat and 6% of them consumed fruits & vegetables and 65% of them prefer fried cooking and (8% & 6% respectively) of them preferred boiled and grilled cooking.

In the same line with **Fathy et al (2022**) mentioned that 24.0% of studied women consumed fruits and vegetables and 90.0% of them red meat, 56.0% of them ate fried food and (8.0%& 6.0% respectively) ate boiled and grilled food. Additionally, study by **Soave et al (2018)** about endometriosis and food habits at Rome, Italy and mentioned a significant reduction in risk emerged for high intake of green vegetables and fresh fruit, and an increased risk was associated with beef and red meat.

Possible clarification is red meat is a source of saturated fats which is responsible for moderate raise in estradiol concentrations leading to higher circulating levels of steroid hormones. On the other hand dairy products and fruits & vegetables, are sources of tryptophan which is essential for melatonin and serotonin production. Melatonin can regulate inflammation and immune function and protect against oxidative stress, sleep- wake cycle. Serotonin can regulate appetite, sleep and pain **Youseflu et al (2020).**

Regarding BMI, the present study showed that nearly half of studied women were under weight (<18.5 kg/m^2) and nearly one fifth of them were in normal weight. This was approved by **Abd El-Kader et al (2022)**, and showed that BMI was lower among studied women with the mean (19.9 ± 2.0). Potential explanation for the inverse association between BMI and the diagnosis of endometriosis is increased body size or obesity is often associated with anovulation or oligomenorrhea. Therefore, the chance of menstrual regurgitation in the pelvic cavity can be decreased in women with obesity. Another explanation is chronic pain accompanied by endometriosis induce gastrointestinal symptoms or emotional stress that lead to reduced appetite and food intake, which results in lower body weight **(Jenabi et al., 2019).**

Conversely, **Scavone et al (2020)** in his study about relationship between symptoms in women with endometriosis and lifestyles and stated that 68% were normal weight, 22% under-weight. In addition, **Bień et al (2020)** stated that BMI within the normal range among 60.2% of studied women and 12.3 % were under weight. The conflict may be related to change in life style and general status of women.

It is evident in the present study that, nearly half of studied women performed low level of physical activity, two fifth of them perform moderate level and less than one fifth perform high level of physical activity. In agreement with the present study findings, **de Souza et al (2022)** found that half of women exercise rarely. Also, **Youseflu et al (2020)** mentioned 52.6% of women perform physical activities less than one hour per week, 28.2% perform 2-3 hours per week and only 19.35 % perform more than three hours per week.

Moreover, **Helmy et al (2021)** stated that majority of women perform low level of physical activity. Also, **Scavone et al (2020)** 33% of women did not perform physical activity at all, 30% of them perform occasionally, 29 % perform 2-3 times/week and only 8% of them perform 3-5 times/week. In addition, **Fathy et al (2022)** mentioned that 63.3% of studied women perform low level of physical activity, 23.3% of them perform moderate level and 13.3% of them perform high level of physical activity.

The same result showed that more than half of the studied women perform physical activities in the form of daily house work activities and less than one third in the form of walking. In conflict with **Ensari et al (2022)** who carried out a study about associations between physical exercise patterns and pain symptoms in individuals with endometriosis at New York, US and found that 55% of studied women practiced walking, 20% practiced running and 25% perform yoga exercise.

That may be due to our culture that doesn't focus on the importance of exercise for our health as well as women's socio demographic level. However, regular physical exercise can improve levels of immune and anti-inflammatory markers that may reduce endometriosis risk and increased levels of sex hormone binding globulin can lead to reducing estrogen level.

Possible clarification is steady physical activity reduces insulin resistance and hyperinsulinemia. Hyperinsulinemia may increase the concentration of estrogens by lowering the concentration of (SHBG) sex hormone binding globulin and increasing the concentration of (IGF-1) insulin-like growth factor-1, which can stimulate endometrial cell proliferation (**Missmer et al., 2021).**

Furthermore, the present study mentioned that nearly half of them drank 5 or more cups of caffeine/ day. In disagreement with the study results, **Saha et al (2017**) reported 36.5% of women consumed 3-4 cups of coffee per day. Also, **Arion et al (2020)** mentioned that 63.3% of women drank 1–3 cups daily. This may explain that coffee consumption hasn't direct relation with disease but it's effect on the sleep quality and this supported by studied women with high coffee intake had poor sleep quality.

Concerning smoking status, the current study revealed that three quarters of the studied sample were passive smoker and no one of them was active smoker. This result agreed with **Youseflu et al., (2020)** who clarified that 7.69% of them were smoker and 92.31% of them were not smoker.

Regarding total life style, the current study revealed that nearly three quarters of the studied women had unhealthy life style while, less than one quarter of them had healthy life style. Similarly, **Fathy et al (2022**) who stated that 60% of women had unhealthy life style while, 40% had healthy life style. Also, **Abd-Elaziz et al (2021)** stated that 25 % of studied women healthy life style and 75% of them had unhealthy life style before program implementation.

CONCLUSION

Based on the present study findings, it can be concluded that the research questions is answered. Lifestyle factor such as diet and physical activity have a major impact on endometriosis risk. As for studied women personal data, their ages were> 25 years with mean ±SD 32.45±5.24 years. The most consumed diet by nearly half of the studied women was red meat and beef. Nearly half of women were under- weight. Nearly half of women performed low level of physical activities. More than three fifth of the studied women had unhealthy life style and less than two fifth had healthy life style. There was no significant relation between total life style and personal data. p-value > 0.05.

RECOMMENDATIONS:

On the basis of the most important findings of the study, the following recommendations are suggested:

1-The present study finding stress on the importance of awareness raising programs to enhance women knowledge about endometriosis by:

- Mass media campaigns have an essential role to increase awareness toward disease and reproductive health in general.
- The presence of educator nurse to improve women' knowledge about importance of healthy lifestyle to reduce endometriosis related pain.
- Provision of the written and oral instructional guideline in a simple Arabic language containing information about (definition, symptoms, risk factors and complications) of endometriosis to all women attending gynecological out- patient clinics.

2- Replication of the study using a larger probability sample from different geographical areas to increase attention and focus on the diseases.

3- Dietary status and exercise can impact women with endometriosis related symptoms. Therefore, counseling about diet and exercise for these women is recommended.

Table (1): Distribution of studied women according to their personal data (n=132).

Personal data		**No**	**%**
Age	<20	9	6.8
	20-25	45	34.1
	>25	78	**59.1**
Mean ±SD 32.45±5.24			
Education level	Illiterate	14	10.6
	Primary	7	5.3
	Secondary	52	39.4
	University	59	**44.7**
Occupation status	Working	43	32.6
	House wife	89	**67.4**
Marital status	Single	14	10.6
	Married	98	**74.2**
	Divorced	14	10.6
	Widow	6	4.6
Residence	Rural	57	43.2
	Urban	75	**56.8**

Table (2): Distribution of studied women according to life style (Diet and BMI) (n=132).

Variable		**No**	**%**
Most consumed diet	Fruit& vegetables	14	10.6
	Red meat & beef	61	**46.2**
	Carbohydrates	29	22.0
	Mixed	28	21.2
Way of cooking	Boiled	21	15.9
	Grilled	17	12.9
	Fried	64	**48.5**
	Foundry	30	22.7
Number of meals/day	1- 2 meals	84	**63.6**
	3 meals	43	32.6

	4 or more	5	3.8
Body mass index	Under weight	60	**45.4**
	Normal weight	25	18.9
	Over weight	15	11.4
	Moderate obese	10	7.6
	Very obese	12	9.1
	Morbid obese	10	7.6

Table (3): Distribution of studied women according to lifestyle (Caffeine consumption, smoking and physical activity) (n=132).

Variable		**No**	**%**
Caffeine consumption	1-2cups	46	34.8
	3-4cups	23	17.4
	5 or more	63	**47.7**
	No	32	24.2
Type of smoking	Passive	100	**75.8**
	Active	0	0.0
Physical activity hours/week	Low	60	**45.5**
	Moderate	54	40.9
	High	18	13.6
Type of activity	Walking	46	34.8
	Daily house work activities	86	**65.2**
	Running	0	0.0

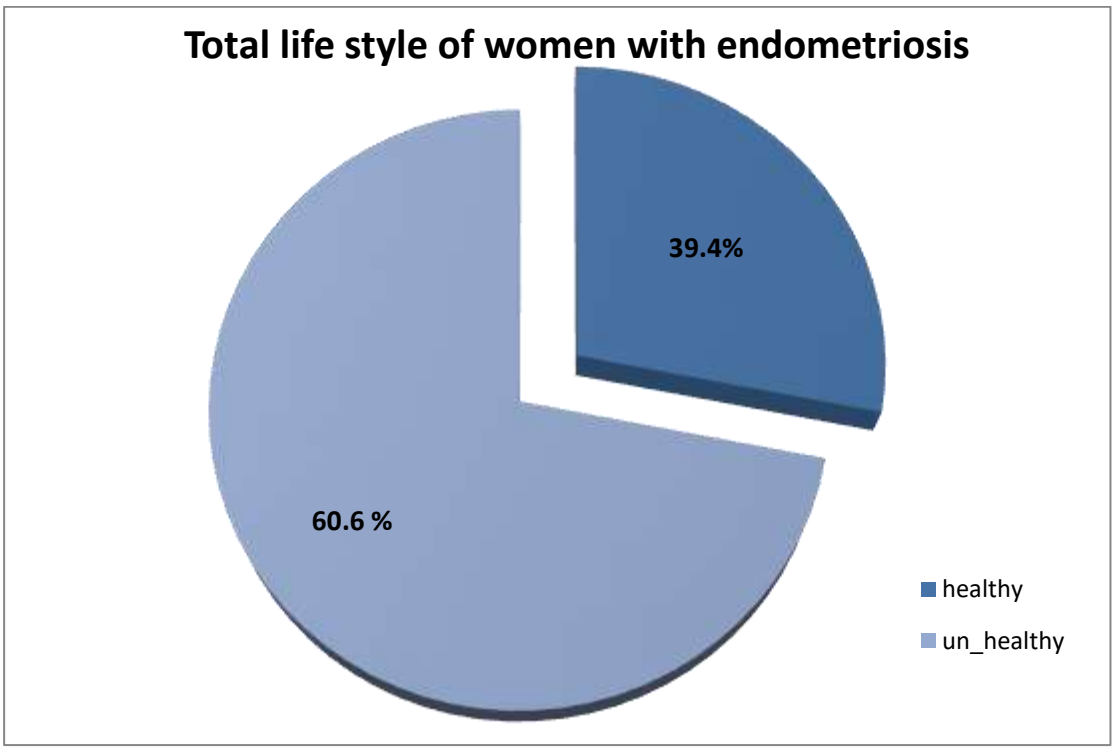

Figure (1): Distribution of studied women according to total lifestyle (n=132).

Table (4): Relation between general characteristics and total life style of the studied women (n=132).

Items		Total life style				X^2	P-Value
		Healthy N= 37		Un healthy N= 95			
		N	%	N	%		
Age	<20	1	0.8	8	6.1	3.25	0.19
	20-25	19	14.4	26	19.7		
	>25	32	24.2	46	34.8		
Education Level	Illiterate	5	3.8	9	6.8	6.79	0.07
	Primary	1	0.8	6	4.5		
	Secondary	16	12.1	36	27.3		
	University	30	22.7	29	22.0		
Occupation	Working	22	16.7	21	15.9	3.70	0.05
	Housewife	30	22.7	59	44.7		
Marital status	Single	3	2.3	11	8.3	4.09	0.25
	Married	43	32.6	55	41.7		
	Divorced	5	3.8	9	6.8		
	Widow	1	0.8	5	3.8		
Residence	Rural	22	16.7	35	26.5	0.027	0.87
	Urban	30	22.7	45	34.1		

*Significant at p ‹0.05. **Highly significant at p ‹ 0.01 Not significant at p>0.05

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