Does Present Lifestyle Affect the Health Status among Productive Workforce and Menopausal Women?

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Abstract

Introduction: Women are exposed to plethora of health complaints during reproductive life, pre-menopause and menopause due to altered lifestyle, dietary pattern, hormonal changes and their socio-demographic profile. The urban and rural women experience problems related to neurological, psychological and other endocrinal manifestations during these stages. The present study was designed to find out the relation between socio demographic, menstrual pattern, dietary influence and lifestyle determinants on health status of productive, peri-menopausal and menopausal women. *Materials and Methods:* This cross-sectional community based comparative study was conducted in the rural and urban field practice area of a Medical College in Karnataka. Health status of women in productive age, peri-menopausal and menopausal life was collected. Association between socio demographic factors, dietary factors and lifestyle determinants was analyzed among the study participants. *Results:* We found that backache and abdominal pain are the predominant symptoms among both rural and urban women of productive age group. Younger women had more abdominal pain when compared with peri-menopausal women who complained more of knee and back pain. (p<0.05), younger the age at menarche, lesser the frequency of abdominal and back pain (p<0.05), those who were practicing contraceptive method had fibroid uterus as a predominant comorbid feature and minor ailments were seen among those without any contraception (p<0.05). Those who were on vegetarian diet had minor ailments when compared with those on non vegetarian diet who showed more incidence of fibroid uterus among them (p<0.05). *Conclusion:* The quality of health status of reproductive and menopausal women is affected by their socio demographic factors, hormonal changes, menstrual pattern, dietary intake and lifestyle.

Keywords: Diet; Lifestyle; Menopause; Peri-Menopause; Productive Women.

Introduction

Women play variety of significant roles in development of family, society, community and nation. They are different from men physically and physiologically. Menstruation is a natural phenomenon occurring in females wherein they undergo periodic reproductive changes. The beginning of menstruation in a woman's life is called menarche and the end of menstruation is called menopause.

This phenomenon is crucial in a woman's life not only because it facilitates child bearing but also because it acts like a protective shield against a lot of diseases[1,2]. Women during their reproductive age experience discomforts related to menstrual cycle, pattern and other features of premenstrual syndrome due to the systemic actions of the fluctuations in hormones [2].

According to WHO, peri-menopause is the period 2-8 years before menopause and the one-year period after final menses, resulting from the loss of ovarian follicular activity [3,4]. Peri-menopause can start at early 30 to mid 40 years age group which is associated with intense biological variability as a result of hormonal and clinical changes [5,6].

Once a female undergoes menopause which can be seen in the age group of 45-55 years, she is vulnerable to a plethora of diseases and lifestyle discomfort [7]. The occurrence of these diseases is majorly influenced by the lifestyle of the female during her productive phase and socio-demographic profile. The lifestyle of urban and rural women vary vastly, due to different activities, stress levels and socio-environmental factors influencing it [8,9].

These two different populations are facing different peri and post-menopausal problems. Peri-menopausal complaints may be related to

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neurological, psychological and other endocrinal manifestations. Post menopausal problems range from something as harmless as mild insomnia, osteoporosis, urinary incontinence, sexual dysfunction to something as fatal as coronary heart disease [10,11].

Studies have shown that dietary pattern of peri-menopausal and post-menopausal women have significant effect on the morbidity features of menopausal syndrome. Vegetarian diet with more fiber, minerals and phytochemicals will have lesser calories, saturated fat and cholesterol compared to non vegetarian diet. Asian vegetarian postmen opausal women showed significantly lower spine or hip bone mineral density abnormalities and those consuming soy isoflavones had beneficial effect on bone health in postmenopausal women [12,13].

Added to that, it has been observed that women are attaining premature menopause in their life due to multiple factors which are attributed to genetic disorders, autoimmune diseases, enzyme defects, life style changes etc [14].

It is clear that women spend about 1/3rd of their life in this stage. A clear understanding of peri and post-menopausal problems, its patho-physiology and its effects on the health of a person is needed. This will help us deal with it better, manage it effectively and add more quality years to the lives of the human resource of our country. Hence the present study was designed to find out the relation between socio demographic, menstrual pattern, dietary influence and lifestyle determinants on health status of productive, peri and post-menopausal women.

Materials and Methods

This cross-sectional community based comparative study was conducted in the rural and urban field practice area of a Medical College in Karnataka during November 2016-February 2017. Ethical approval was obtained for this study from the Institutional Ethics review committee. Females aged 30-60 years residing in rural and urban areas in and around field practice area of the Medical College and those women visiting the attached rural and urban health centers with minor ailments who were willing to participate in the study were included. Convenient purposive sampling method was employed. Women less than 30 years of age, with known history of any non communicable diseases, unnatural menopause, on any medications, physical and mental disability or pregnant were excluded.

Their age, socio-demographic profile, literacy status, occupation, general physical examination, vital signs, complete systemic examination were done. Their personal, drug, diet and family history were taken. Obstetric history which included age at menarche, last menstrual period, menstrual pattern, peri/menopausal symptoms, contraception, fertility, sexual history and lifestyle pattern were recorded.

A pretested specific structured questionnaire on their health status, peri-menopausal and menopausal symptoms was administered to the study participants. Based on their responses, history and clinical examination they were classified as productive group, peri-menopausal and menopausal groups.

Statistical Analysis

Association between demographic factors, dietary factors and lifestyle determinants was analyzed among productive age, peri and post-menopausal rural and urban women using SPSS Version 22. Chi squared test was used to find the association of study and outcome variables and $p < 0.05$ was considered as significant.

Results

Table 1 shows the age group and residential status of women included in the study. 33 women were from rural area and 33 from urban area. (n=66)

Table 2 shows the socio-demographic and lifestyle factors like residence, literacy status, occupation and reproductive life among affecting health status among the study participants. Backache and abdominal pain are the predominant symptoms among both rural and urban women of productive age group. These women having different occupation did present with variation in these symptoms. Women with contraception had almost all the symptoms without any specific preference. There was no statistical difference seen with respect to their literacy status and number of children influencing their symptoms.

When the effect of age at menarche with their health complaints was analyzed, we observed that younger the age at menarche, lesser the frequency of abdominal and back pain (p=0.045). Those who had regular menstrual pattern had more abdominal pain when compared with those with irregular pattern having knee pain (p=0.000).

Figure 1 shows that younger women had more abdominal pain when compared with peri-

menopausal women who complained more of knee and back pain (p=0.021).

Figure 2 reveals that women in their reproductive age group had more abdominal pain, where as those who attained menopause had knee pain (p=0.000).

When effect of diet on these symptoms was studied, the results revealed that those who were on vegetarian diet had more of backache and non vegetarian women complained more of abdominal pain in reproductive age group (p=0.000) (Figure 3).

Table 1: Age group and residential status of study group (N=66)

Age group (Years)	Study Group	Rural	Urban	Total
30-39	Productive group	10	12	22
40-49	Pre-menopausal group	11	11	22
50-59	Menopausal group	12	10	22
Total		33	33	66

Table 2: Sociodemographic and lifestyle parameters affecting health status of the participants (N=66)

|	Backache	Abdominal pain	Knee pain	Weakness	Headache	P value
Residence						
Rural	8(24.2%)	9(27.3%)	7(21.2%)	6(18.2%)	2(6.1%)	0.919
Urban	10(30.3%)	10(30.3%)	6(18.2%)	4(12.1%)	3(9.1%)	
Literacy status						
Literate	13(31.0%)	15(35.7%)	6(14.3%)	5(11.9%)	2(4.8%)	0.186
Illiterate	5(20.8%)	4(16.7%)	7(29.2%)	5(20.8%)	3(12.5%)	
Occupation						
Beedi rolling	3(42.9%)	2(28.6%)	1(14.3%)	-	1(14.3%)	0.091
Farming	3(30.0%)	-	3(30.0%)	3(30.0%)		
Coolie	3(21.4%)	1(7.1%)	4(28.6%)	3(21.4%)	3(21.4%)	
Housewife	5(22.7%)	9(40.9%)	5(22.7%)	3(13.6%)	-	
Others	4(30.8%)	7(53.8%)	-	1(7.7%)	1(7.7%)	
Age at Menarche						
<12 Years			1(25.0%)	3(75.0%)		0.045*
12 Years	4(20.0%)	5(25.0%)	4(20.0%)	5(25.0%)	2(10.0%)	
13 Years	7(30.4%)	7(30.4%)	5(21.7%)	1(4.3%)	3(13.0%)	
>13 Years	7(36.8%)	7(36.8%)	3(15.8%)	1(5.3%)		
Menstrual Pattern						
Regular	9(28.1%)	11(34.4%)	1(3.1%)	7(21.9%)	4(12.5%)	0.000*
Irregular	9(29.0%)	8(25.8%)	11(35.5%)	2(6.5%)	1(3.2%)	
Contraception						
Done	8(22.2%)	10(27.8%)	8(22.2%)	7(19.4%)	3(8.3%)	0.729
Not done	10(33.3%)	9(30.0%)	5(16.7%)	3(10.0%)	2(6.7%)	
No of children						
Less than 2	4(26.7%)	5(33.3%)	2(13.3%)	2(13.3%)	1(6.7%)	0.367
2	7(29.2%)	9(37.5%)	9(37.5%)	3(12.5%)	3(12.5%)	
More than 2	7(26.9%)	4(15.4%)	9(34.6%)	5(19.2%)	1(3.8%)	
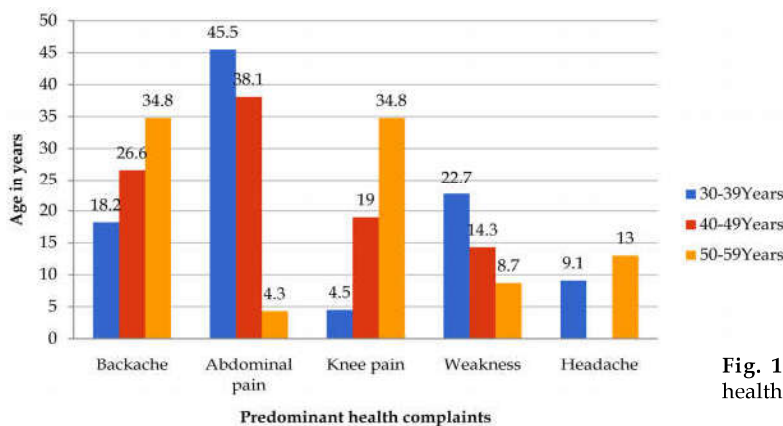
Fig. 1: Age wise distribution of health complaints

Table 3: Socio-demographic and menstrual factors affecting co morbidity among study population   (N=66)

	Fibroid uterus	Anemia	Ovarian cyst	Carcinoma endometrium	Others	p value
Age						
30-39Years	6 (27.3%)	6 (27.3%)	4 (18.2%)	1 (4.5%)	5 (22.7%)	0.124
40-49Years	10(47.6%)	1(4.8%)	1(4.8%)	-	9(42.5%)	
50-59Years	5(21.7%)	2(8.7%)	3(13.0%)	11(47.8%)		
Residence						
Rural	11(33.3%)	6(18.2%)	3(9.1%)	1(3.0%)	12(36.4%)	0.75
Urban	10(30.3%)	3(9.1%)	5(15.2%)	2(6.1%)	13(39.4%)	
Literacy status						
Literate	11(26.2%)	4(9.5%)	7(16.7%)	3(7.1%)	17(40.5%)	0.167
Illiterate	10(41.7%)	5(20.8%)	1(4.2%)		8(33.3%)	
Occupation						
Beedi rolling		1(14.3%)	2(28.6%)	1(14.3%)	3(42.9%)	0.169
Farming	3(30.0%)	3(30.0%)	1(10.0%)		3(30.0%)	
Coolie	9(64.3%)				5(35.7%)	
Housewife	7(31.8%)	3(13.6%)	2(9.1%)	2(9.1%)	8(36.4%)	
Others	2(15.4%)	2(15.4%)	3(23.1%)		6(46.2%)	
Age at menarche						
less than 12yrs	2(50.0%)	-	-	-	2(50.0%)	0.439
12 yrs	9(45.0%)	2(10.0%)		1(5.0%)	8(40.0%)	
13yrs	6(26.1%)	5(21.7%)	4(17.4%)		8(34.8%)	
more than 13yrs	4(21.1%)	2(10.5%)	4(21.1%)	2(10.5%)	7(36.8%)	
Menstrual Status						
Menstruating	13(34.2%)	7(18.4%)	4(10.5%)	1(2.6%)	13(34.2%)	0.576
Menopause	8(28.6%)	2(7.1%)	4(14.3%)	2(7.1%)	12(42.9%)	
Menstrual Pattern						
Regular	5(15.6%)	7(21.9%)	4(12.5%)	2(6.3%)	14(43.8%)	*0.033**
Irregular	16(51.6%)	2(6.5%)	4(12.9%)	1(3.2%)	8(25.8%)	
No. of Children						
Less than 2	4(26.7%)	3(20.0%)	1(6.7%)		7(46.7%)	0.79
2	7(29.2%)	3(12.5%)	5(20.8%)	1(4.2%)	8(33.3%)	
More than 2	9(34.6%)	3(11.5%)	2(7.7%)	2(7.7%)	10(38.5%)	
Contraception						
Done	17(47.2%)	4(11.1%)	5(13.9%)	1(2.8%)	9(25.0%)	*0.033**
Not done	4(13.3%)	5(16.7%)	3(10.0%)	2(6.7%)	16(53.3%)	
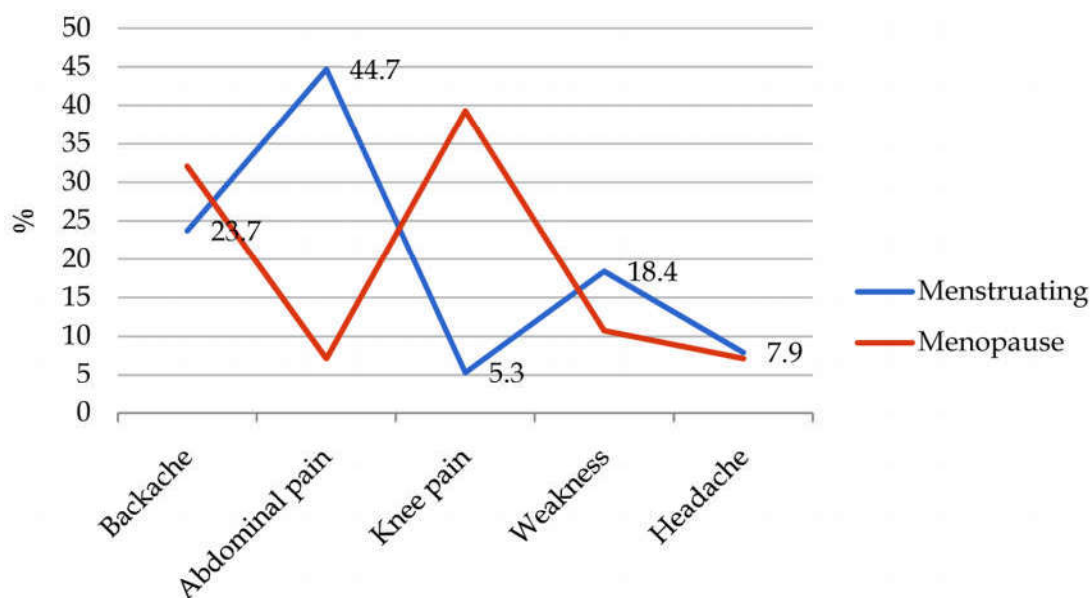
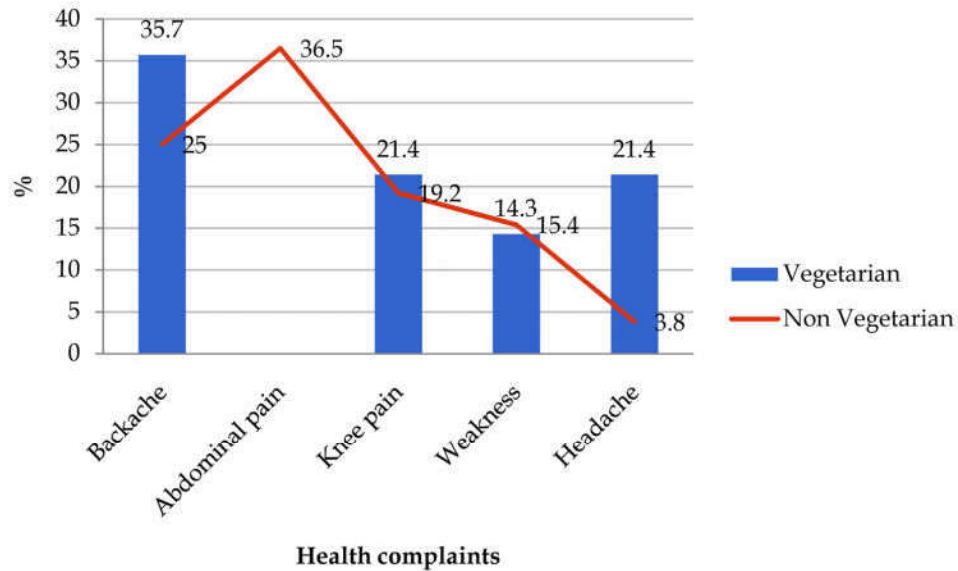**Fig. 2:** Distribution of health complaints based on menstrual status

Fig. 3: Distribution of health complaints based on dietary pattern
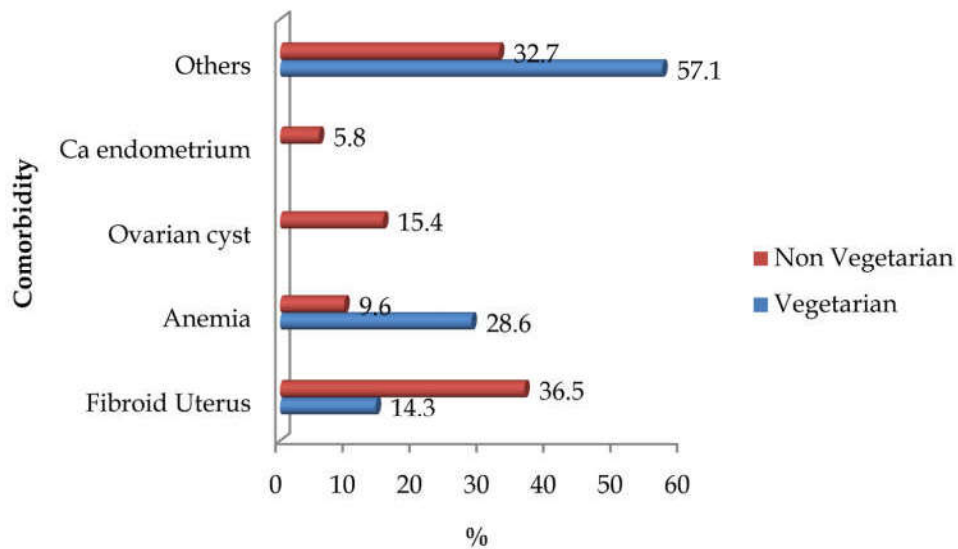

Fig. 4: Distribution of co morbidity among women with health complaints based on their dietary pattern

Table 3 shows the socio-demographic and menstrual factors affecting co morbidity among productive and menopausal women. The common co morbidity was fibroid uterus, anemia, ovarian cyst and carcinoma endometrium. Fibroid uterus and anemia were seen commonly among younger and middle aged productive women, whereas carcinoma endometrium among menopausal women. Fibroid was seen as a predominant disease among both rural and urban women irrespective of their literacy status.

Women with regular menstrual pattern in reproductive group had minor diseases like anemia and ovarian cyst where as those with irregular pattern suffered from fibroid uterus (51%) (p=0.033).

There was a significant difference in the distribution of co morbidity among productive women with health complaints based on their contraception status. Those who were practicing contraceptive method had fibroid uterus as a predominant co morbid feature and minor ailments were seen among those without any contraception (p=0.033).

No significant effect was seen with respect to age at menarche and occupation on co morbidity among these women.

Figure 4 shows the effect of diet on distribution of comorbidity among women with health complaints. Those who were on vegetarian diet had minor

ailments when compared with those on non vegetarian diet who showed more incidence of fibroid uterus among them (p=0.043).

Discussion

This study showed the relation between socio-demographic and lifestyle determinants on health status among productive age, peri and post menopausal rural and urban women. All women undergo menopause between the ages 45-50 yrs. During which their ovaries stop producing estrogen while the adrenals and fat tissue continue to produce the hormone [15]. Ovaries are the major organ producing the hormone so there is a drastic drop in the estrogen levels in the blood levels. This transition is usually accompanied by unpleasant to highly incapacitating state resulting in postmenopausal syndrome [16].

Different health issues were seen among rural and urban women like backache and abdominal pain, knee pain, weakness, headache which is in accordance with the study done on 209 women at coastal areas of Karnataka by Nayak G et al [17]. Similar observations were made at Malaysia by Dhillon HK[18]. There were differences in premenstrual symptoms, place of residence, literacy status, occupation as seen in a study in Kolkata [19].

In our study, younger women had more abdominal pain when compared with older women who complained more of knee and back pain. This is in accordance with the Chingford Study that examined the natural history, role of risk factors and incidence of knee osteoarthritis. It was found that in comparison to controls, obese women had a significantly increased risk of incident knee osteophytes and osteoarthritis [20].

We observed that younger the age at menarche, lesser the frequency of abdominal and back pain. A study was conducted to find the relation between precocious puberty and use of oral contraceptive pills with the incidence of pelvic pain and persistent pelvic joint instability.The study revealed that women with the above said conditions differed from the controls by a significantly lower age at menarche leading to the finding that precocious puberty is associated with a fibrous dysplasia which resembles that seen in some persistent pelvic joint instability patients. Precocious puberty is also known to be associated with hypothalamic dysfunction [21].

We found that women in their reproductive age group had more abdominal pain, where as those who attained menopause had knee pain. A pilot study was conducted to determine the effects of a weight loss and walking programme on obese post menopausal women with knee pain. It revealed that an intervention like this improves measures of physical functioning and pain due to knee osteoarthritis. Among obese women, functional improvement correlated with weight loss, encouraging continued emphasis on weight loss for managing knee osteoarthritis [22].

A study was conducted among 480 University students in Turkey, to find the patterns of menstrual cycles, analyzed for association with age of menarche, prevalence of menstrual irregularity, dysmenorrhea, prolonged menstrual bleeding, and effect of menstrual disorders, on social activities and school attendance among the female students. It was found that the prevalence of menstrual irregularity, prolonged menstrual bleeding and dysmenorrhea were 31.2%, 5.3% and 89.5%, respectively. It was concluded that the prevalence of dysmenorrhea and menstrual irregularity was high and most adolescents have inappropriate and insufficient information about menstrual problems [23].

Our results revealed that those who were on vegetarian diet had more of backache and non vegetarian women complained more of abdominal pain among the productive group. Effect of diet on endometriosis and dysmenorrhea showed some relation between disease and low intake of vegetable and fruit and high intake of vegetarian polyunsaturated fat, ham, beef and other red meat. Intake of fish oil seemed to have a positive effect on pain symptoms [24].

Fibroid uterus and anemia were seen commonly among younger and middle aged productive women, whereas carcinoma endometrium among older menopausal women. Silverberg SG et al, observed that fibroid was seen as a predominant disease among both rural and urban women irrespective of their literacy status. They observed higher incidences of nulliparity, obesity, and features associated with endometrial carcinoma in the patients not receiving oral contraceptives or receiving combined agents, suggesting that the group receiving sequential may not represent the same constitutionally predisposed population. No significant effect was seen with respect to age at menarche, occupation and menstrual status on co morbidity among these women [25].

We found that women with regular menstrual pattern had minor diseases like anemia and ovarian where as those with irregular pattern suffered from fibroid uterus. Amanti L et al, observed that the length

of menstrual cycle was associated with myoma and a higher likelihood of was seen among those having irregular short menstrual cycles. This may be due to estrogen dependence of uterine leiomyomas [26].

It was observed in our study that, those who were practicing contraceptive method had fibroid uterus as a predominant co morbid feature and minor ailments were seen among those without any contraception. Scholes D et al, in their study was to establish a relationship between the use of oral contraceptive pills during later reproductive life and risk of fracture across menopausal transition among 1,204 case women and 2,275 control women found that adjusted fracture risk did not differ between cases and controls. It did not show an association between fractures near the menopausal transition and oral contraceptive use in the decade before menopause or after age 38 [27].

Those who were on vegetarian diet had minor ailments when compared with those on non vegetarian diet who showed more incidence of fibroid uterus among them in our study. In a study to find out the role of diet in the development of co morbidities in obese individuals and also to find an association between inflammation and diet, concluded that the best diet for protecting against the metabolic derangements associated with obesity and metabolic syndrome would be high in fibre-rich cereals, fruits, vegetables, fish, virgin olive oil and nuts; moderate in wine; and low in meat, processed meat foods and trans-fatty acids. Several procoagulant proteins such as plasminogen activator inhibitor type 1, tissue factor, factor VII and also inducible nitric oxide synthase show higher expression in adipose tissue of obese people in comparison to lean. This over expression could explain at least a part of the atherogenic and cardiovascular risk associated with obesity. Overweight and obesity are associated with an increased risk of developing the common features of the metabolic syndrome. Studies suggest that chronically elevated local or systemic concentrations of adipokynes contribute to the development of complications associated with obesity and metabolic syndrome [28].

It is noticed that women who follow a non vegetarian diet experience more of these symptoms and gynaecological disturbances than women following a vegetarian diet. The possible reason for this might be that a high fat and a low fiber diet causes rise in estrogen levels. Therefore their transition from pre menopause to menopause is more intense as there is a drastic drop in the levels of estrogen [12,13].

In a study conducted between Greek and Mayan women, Mayan women did not experience hot flushes and other postmenopausal symptoms at all whereas it was a common occurrence among the Greek women. The major difference among these groups is diet. The Mayan diet consists of corn,beans, vegetables and very little meat and no dairy products. But the Greek diet consists of legumes, dairy products and a lot of meat [29,30].

This study reinforced the idea that vegetarian diet helps in the control of post-menopausal symptoms. This idea has been adopted by many women to help control their symptoms and many have reported success stories. More sample size with different settings correlating with laboratory investigations form the future scope of this study.

Conclusions

Various factors affect the health status of women among productive age group, peri-menopausal and postmenopausal stage. This study identified such factors among different socio demographic classes. This will be useful in sensitizing women on physiological changes during different phases of life, different types of diseases that they can be exposed to and advocating the active lifestyle. Once the problems have been identified, it will help women not only deal with the problem effectively but also take appropriate measures to prevent it.

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