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# Knowledge and Awareness of Pelvic Floor Disorders and Rehabilitation in Postpartum Women: An Observational Study

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## Abstract

**Background** The prevalence of pelvic floor disorders (PFDs) is considerably high, yet, only a handful of women seek help as most of them accept it as a consequence of pregnancy, childbirth, and as a part of aging process. Pelvic floor physiotherapy is considered primary treatment for management of PFDs. Inadequate knowledge is a major obstacle in seeking appropriate treatment. The present study intends to evaluate the knowledge and awareness of PFDs and rehabilitation in postpartum women.

**Methodology** The study comprised of 316 postpartum women from a tertiary care center in Belagavi district. Data was collected through an interviewer-administered questionnaire about PFDs and questions to assess awareness of pelvic floor physiotherapy.

**Outcome Measures** Australian Pelvic Floor Questionnaire which comprises of 42 questions, divided in 4 domains, about bladder, bowel, prolapse, and sexual function was used along with 6 self-designed questions about pelvic floor physiotherapy, to evaluate the knowledge of PFDs and rehabilitation.

**Results** The statistical analysis was done using the SPSS software version 26. The prevalence of PFDs was 63.6% with bladder component affected in 54.11%, bowel in 26.8%, prolapse symptoms in 2.21%, and sexual function in 22% postpartum women. They lacked knowledge regarding PFDs and rehabilitation with 84.4% considering the symptoms as normal and only 5.69% aware about pelvic floor physiotherapy.

**Conclusion** The study concludes that there is a high prevalence of PFDs and a substantial lack of knowledge and awareness regarding PFDs and its rehabilitation.

**Keywords**

- pelvic floor disorders
- pelvic floor rehabilitation
- Australian Pelvic Floor Questionnaire
- postpartum women

## Introduction

Pelvic floor disorders (PFDs) refer to a constellation of symptoms and structural changes related to abnormal functioning of pelvic floor musculature. The dysfunction corresponds to either increased activity (hypertonicity), diminished activity (hypotonicity), or incoordination of the pelvic floor muscles.[1] It is a crucial yet overlooked health care issue with pregnancy, childbirth, and menopause being the major risk factors.[2] The integrity of internal organs is maintained by the appropriate coordination of pelvic floor with the nervous system, as well as the well-coordinated contraction and relaxation of pelvic floor muscles, which help with continence, micturition, defecation, sexual activity, and childbirth.[3] Pregnancy brings tremendous hormonal and physical changes in the female body which is associated with increased muscle fatigue predisposing women to experiencing PFDs like bowel and bladder incontinence, flatus incontinence, voiding dysfunctions, constipation, sexual

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dysfunctions, pelvic pain, and pelvic organ prolapse (POP) in the postpartum period.[3,4] Pelvic floor problems bring embarrassment to most women and are still a taboo, making them a neglected area of women's health and an important public health issue. The literature on prevalence of PFDs in postpartum females in Indian population is limited, wherein studies assessing all domains of pelvic health are scarce. Furthermore, no studies, in the Indian population, have concentrated on assessing the awareness of role of physiotherapy for the treatment of PFDs. Most females are reluctant to report symptoms either due to embarrassment, lack of awareness about treatment options, or misconception about the normal aging process. Women usually seek help when the symptoms get severe to an extent wherein it mandates a surgical intervention. Pelvic floor rehabilitation is an evidence-based, low-risk, and minimally invasive intervention that can aid in the prevention, treatment, and/or management of PFDs.[5] Hence, the present study intended to assess the knowledge and awareness of PFDs and rehabilitation in postpartum women.

## Material and Methods

Primary data was collected from a tertiary care hospital in Belagavi city, Karnataka, India. The present study was a cross-sectional study and was approved by the Institutional Ethical Committee (ethical clearance no. 821). The sample size calculation was based on expected prevalence from the former studies using the formula, $n = Z^2\ p\ (q)/d^2$.

The derived sample size was 316 for which nonprobability sampling was used with a sample of convenience. The study screened 423 postpartum females in a span of 6 months, out of which 316 women were included based on the following inclusion criteria: age between 21 and 40 years, within 6 months postpartum, those who had undergone at least one normal delivery (with or without episiotomy) or lower segment caesarean section, and those willing to participate. The exclusion criteria were pregnant females, those who had undergone recent pelvic floor surgeries, those with PFDs secondary to orthopaedic or neurological issues, and those with acute illnesses. Informed consent was obtained from all participants prior to inclusion in the study and the procedure was explained to all. Demographic data was recorded, and participants were administered the Australian Pelvic Floor Questionnaire (APFQ)[6] along with six self-designed questions to assess their knowledge and awareness of PFDs and physiotherapy treatment. APFQ is an interviewer-administered pelvic floor questionnaire that incorporates four domains: bladder function, bowel function, sexual function, and POP, severity, bothersomeness, and condition-specific quality of life. Aggregate scores are calculated individually for the bladder, bowel, POP, and sexual symptom categories. The resulting scores are divided by the total score for each domain and multiplied by 10, yielding a value between 0 and 10 for each of the four domains and a summative global pelvic floor dysfunction score of 40. A higher score indicates the existence of pelvic floor abnormalities, whereas a lower value indicates the existence of an efficient pelvic floor. It has a Cronbach's alpha value of 0.72 for bladder function domain, 0.82 for bowel function domain, 0.81 for sexual function domain, and 0.95 for the domain of POP. The statistical analysis was done using SPSS software version 26.

## Results

A total of 316 women, who were within 6 months postpartum and between the age of 21 and 40 years, were included in the study and the prevalence of each domain along with the percentage of pelvic floor affected was evaluated using the APFQ scoring system. Apart from this, six other questions were asked to assess the perception of PFDs and awareness about its rehabilitation. ►**Table 1** shows the demographic data collected from the females.

►**Fig. 1** shows the prevalence of each domain of PFD along with the global affection of pelvic floor. Bladder component was affected in 54.11%, bowel in 26.8%, prolapse in 2.21%, and sexual function in 22% postpartum women with a global affection in 63.6% postpartum women. ►**Fig. 2** shows the percentage of pelvic floor affected in postpartum women. The pelvic floor was affected in the range of 0 to 5% in 109, 5 to 10% in 44, 10 to 15% in 25, 15 to 20% in 13, 20 to 25% in 5, 25 to 30% 1, and 30 to 35% in 4 postpartum women.

Based on the six questions asked to evaluate knowledge and perception, 84.4% women felt that the symptoms they were experiencing are normal whereas only 5.96% were aware about pelvic floor physiotherapy and that it can help alleviate these symptoms. None of these females had ever considered seeking any treatment, been assessed by a pelvic floor physiotherapist, or were aware about different treatment techniques in pelvic floor physiotherapy.

Out of the 316 females included in the study, 21 were illiterate, 134 had primary school education, 134 had high school education, 19 were graduates, and 8 were postgraduates.

►**Table 2** shows the correlation analysis, done between the level of education and the perception and awareness of PFDs and rehabilitation, and was found to be nonsignificant at 5% level of significance for awareness and effectiveness of pelvic floor rehabilitation and was significant at 5% level of significance for perception of PFDs.

**Table 1** Distribution of the data

| | Mean | Standard deviation |
|---|---|---|
| Age | 29.08 | 5.85 |
| Height | 156.3 | 6.75 |
| Weight | 56.94 | 9.73 |
| BMI | 23.32 | 3.98 |
| Menarche age | 13.06 | 1.12 |
| Age at marriage | 20.70 | 3.38 |
| Age at first delivery | 22.58 | 3.48 |
| Parity | 1.91 | 0.87 |
| Vaginal delivery | 0.52 | 0.49 |
| C-section | 0.50 | 0.50 |

Abbreviations: BMI, body mass index; C-section, cesarean section.

 

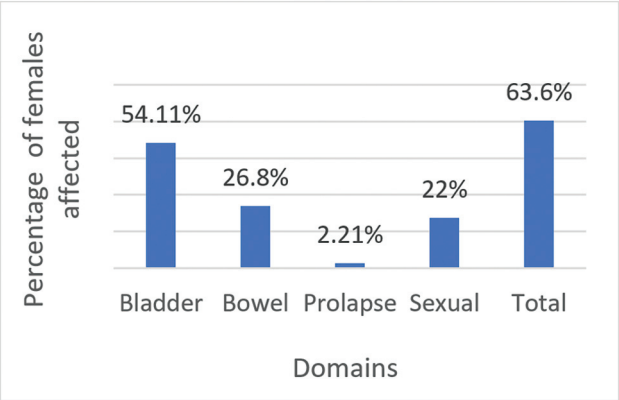


**Fig. 1** Prevalence of pelvic floor disorders.

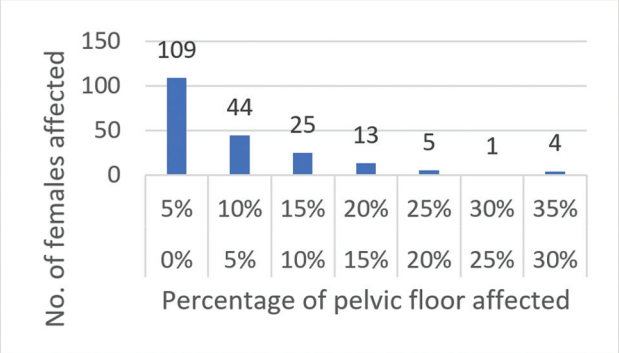


**Fig. 2** Percentage of pelvic floor affected.

## Discussion

PFDs are a significant impairment among women, especially after childbirth. The present study aimed to examine the knowledge and awareness of PFDs and rehabilitation among postpartum females.

The prevalence of PFDs in postpartum women has been studied in several regions of the world. The present study found the prevalence of PFDs to be 63.6% in women who were within 6 months postpartum between the age of 21 and 40 years. This is in agreement with research undertaken in South India among 26 villages of Tamil Nadu, which included all domains of pelvic health, namely, urinary incontinence (UI), fecal incontinence (FI), POP, sexual dysfunction, and pelvic pain, where the prevalence was found to be 54.7% in females between the age of 18 and 70 years.[7]

In India, a study done in Kuppam, found that 19.33% women visiting their gynecological outpatient department, suffered from some form of PFD which included POP, UI, or FI.[8] Another study conducted in Udupi Taluk in Karnataka, reported a prevalence of 21% in married women with 19.02 and 1.99% suffering from UI and POP, respectively.[9] In consonance with this, a study in North India reported a prevalence of 20.7% with inclusion of the domains of POP, UI, and FI along with flatus incontinence.[10] The high prevalence rate from the present study can be attributed to the chosen study population (postpartum women) and the inclusion of the domain of sexual dysfunction which has not been addressed earlier along with UI, FI, and POP.

A longitudinal study by Hou and Tong in 2022, established the APFQ scores to be at the peak in the final trimester of pregnancy with a steady decline at 2 months, 6 months, and 3 years postpartum.[11] Due to the hormonal and physical changes brought on by pregnancy, women are more susceptible to developing PFDs, namely, bowel and bladder incontinence, flatus incontinence, voiding dysfunctions, constipation, sexual dysfunctions, pelvic pain, and POP, during the postpartum period. A wider and anteriorly tilted pelvis, in addition to a gravid uterus, are physical abnormalities that might cause overstretching of the pelvic floor. The hormonal changes include the excessive secretion of relaxin and progesterone to make childbirth easier, which degrade elastin and modify collagen to relax the pelvic ligaments, muscles, and fascia, making the pelvic joints unstable and adversely affecting their supporting function.[3,4,12–16]

The female body requires around 6 weeks to 6 months to recover from these changes and even then, does not return back to its prepregnant state. This study also attempted to investigate and offer additional data on the influence of childbirth on pelvic floor dysfunctions. Hence, the age group of our study participants was between 21 and 40 years so as to eliminate the effect of hormonal fluctuations in the premenopausal age.

The Indian population has several cultural notions that restrict people from considering sexual function as a part of pelvic health. According to the Diagnostic and Statistical Manual of Mental Disorders Fifth Edition criteria, fluctuations in gonadal hormone production, postpartum women are more susceptible to developing sexual dysfunctions such as hypoactive desire, painful sexual intercourse, arousal, and orgasmic disorder. It is typical to experience hypoactive sexual desire in the first 6 to 7 weeks after giving birth, but if it persists, it may strain relationships. Persistent dyspareunia and vaginismus, 60 to 180 days postpartum, may be caused by psychological, physical, or a combination of both. Culture also plays a vital role in this. Disorders related to arousal and orgasm frequently coexist with other illnesses.[17,18]

**Table 2** Correlation analysis of level of education with perception of pelvic floor disorders and awareness of pelvic floor physiotherapy

| Serial no. | Correlation of level of education with | Coefficient of correlation (*r*) | *p*-Value |
|---|---|---|---|
| 1 | Perception of pelvic floor disorders | 0.1284 | 0.02* |
| 2 | Awareness of pelvic floor physiotherapy | 0.0174 | 0.75 |
| 3 | Effectiveness of pelvic floor physiotherapy | 0.0174 | 0.75 |

**significant at $P<0.05$.*

 

A study conducted in Tamil Nadu in 2019 is the only one in India apart from the present study to have included the domain of sexual dysfunction under the heading of pelvic floor dysfunctions, but as per our knowledge no other studies have particularly found the occurrence of sexual dysfunctions in postpartum females.[7]

The postpartum period offers the potential for prompt detection and management of pelvic floor problems. Despite the fact that postpartum pelvic floor abnormalities are common, the pelvic floor is not frequently examined in the context of health care. Questionnaires are adept in measuring these frequently qualitative symptoms, which usually remain unreported and might precipitate to comorbid conditions.[19] To address this issue, eclectic rehabilitation techniques and interventions have been developed, but their usage is at a bare minimum. Hence, the present study highlights the importance of assessing the perception of PFDs and understanding of pelvic floor rehabilitation in postpartum women. It was found that 84.4% women in the present research believed that the symptoms they were experiencing were natural repercussions of pregnancy and childbirth and there was no need for them to be reported or treated. A mere 5.96% of these women were aware about pelvic floor physiotherapy and even they never considered seeking any treatment.

According to Snyder et al, lack of knowledge, time, and resources are the largest barriers for seeking pelvic health care. Women have an adverse mindset concerning their own pelvic health, with a general sense of self-care being a low priority.[3] As a result, despite the frequent occurrence of pelvic floor issues, only a limited number of women seek medical attention, assistance, or guidance.

The present study also found that there was no correlation between level of education and awareness of pelvic floor physiotherapy which suggests that it is imperative to create awareness regarding PFDs and rehabilitation irrespective of the academic qualifications of women. By improving awareness, education, and access to resources, health care professionals can empower women to make informed decisions about their pelvic floor health.

The present research is limited by its single-center design and brief duration. Nevertheless, it is innovative in its examination of perception of PFDs, awareness of pelvic floor physiotherapy, and comprehensive evaluation of various aspects of pelvic floor function.

## Conclusion

According to the findings of the current study, the prevalence of PFDs is 63.6% and there is a substantial lack of knowledge and awareness regarding PFDs and its rehabilitation with only 5.96% women being aware about it and 84.4% women considering the symptoms normal. It emphasizes the need for comprehensive education and antenatal-postnatal care programs to improve pelvic floor knowledge and prevent long-term complications. Further research and targeted interventions are necessary to bridge the knowledge gaps and promote optimal pelvic floor health among postpartum women.

**Conflict of Interest**
None declared.

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# A Descriptive Study to Assess the Unhealthy Lifestyle among Perimenopausal Women in a Selected Medical College Hospital, Mangaluru

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## Abstract

**Introduction** The perimenopausal phase, also known as the menopausal transition, marks a crucial period in a woman's life, characterized by hormonal fluctuations and physiological changes. During this transitory period, lifestyle factors are critical in influencing health outcomes. Lifestyle Appraisal focuses on identifying the lifestyle factors and habits that may affect a woman's health throughout the perimenopausal period.

**Methods and Materials** The objective of the study was to identify perimenopausal women with unhealthy lifestyle practices using a lifestyle appraisal questionnaire. The study used descriptive design to determine the unhealthy lifestyle among perimenopausal women in the age group of 45 to 55 years. A complete enumerative sampling was used to select the 148 participants who fulfilled the inclusion criteria. Every participant completed the self-reported lifestyle assessment questionnaire (LAQ), except for the questions where the researcher measured blood pressure, height, and weight (body mass index [BMI]) with standard protocol.

**Results** Unhealthy lifestyle habits persist in women. The average lifestyle appraisal score was $19.17 \pm 6.88$, ranging from 8 to 35. The higher the score, the unhealthy their lifestyle. The tool's highest possible score is 73. The majority of the subjects did not engage in regular exercise (43.9%), recreational activities (62.8%), or relaxation exercises (81.1%). A substantial number (54.1%) of women had encountered one to two stressful events in the last 6 months, with friends and family occasionally available for support (64.7%). None of them received love and affection every day, but rather on an occasional basis (69.6%). Most (81.1%) reported consuming meals with fruits and vegetables only two to three times a week, while fatty foods or sweets were ingested daily (60.1%). Furthermore, most (45.3%) participants were classified as overweight, with a BMI falling between 23 and 24.9.

**Conclusion** Simple screening methods can be used to evaluate health and lay the groundwork for understanding a person's lifestyle, which helps preserve and encourage a healthy way of life.

**Keywords**
- unhealthy lifestyles
- lifestyle appraisal
- lifestyle practice
- perimenopausal women
- menopausal transition

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## Introduction

Changes in a woman's health and hormone levels during the perimenopausal phase indicate a substantial change in her life.[1] A 2012 World Health Organization (WHO) poll projects that by 2030, there will be 1.2 billion perimenopausal women worldwide, with roughly 76% of them residing in developing nations.[2] Perimenopausal working women experience symptoms related to menopause, which impair their ability to do their jobs. Studies show that a significant portion of women experience vasomotor issues, difficulty sleeping, psychological issues, and problems with urination when going through menopause. They may find it somewhat challenging to handle their work responsibilities due to these symptoms.[3] Health problems are more likely to affect postmenopausal women with lower incomes and educational attainment.[4]

Women going through menopause frequently see changes in their physical, mental, and cardiometabolic health, which can have a detrimental effect on their quality of life.[5] Changes in the composition of the body and risks associated with cardiometabolism have been noted in women going through perimenopause.[6] Research indicates that perimenopausal women often gain weight and develop obesity, which increases their body mass index (BMI).[7] Perimenopausal overweight women are more likely to get hyperglycemia.[8] The greatest blood pressure, cholesterol, and triglyceride levels were recorded during late perimenopause or early postmenopause.[9] During perimenopause, the risk of cardiovascular disease rises significantly,[10] and breast cancer risk varies by several factors.[11] Women are four times more likely than men to develop osteoporosis, leading to weakened bones and fractures.[12]

Adopting a healthy lifestyle lowers the risk of cardiovascular disease and offers other related benefits.[13] According to studies, physical exercise has a significant role in controlling the risk of postmenopausal breast cancer, with leisure-time physical activity showing a negative correlation with the disease's risk.[14] Furthermore, middle-aged women who regularly exercise, especially by walking 6,000 steps or more a day, are linked to a decreased risk of diabetes and cardiovascular disease, independent of menopausal status.[14] Stress is a common element of the human experience. But increased stress raises the intensity and frequency of a number of cardiovascular risk factors.[15] Women going through menopause may get anxious because of their decreased ability to reproduce.[16] Lack of sleep increases heart disease risk, and menopause often brings insomnia, worsening quality of life.[17,18] Perimenopausal women who drink coffee and use alcohol, smoke, or consume tobacco face higher health risks, including breast cancer.[19,20] Fatigue is a major health issue for perimenopausal women, affecting their quality of life and well-being.[21,22]

Dietary intake of fruits and vegetables plays a crucial role in influencing health risks during perimenopause. Low-fat diets are good for perimenopausal body composition.[23] Research indicates that higher consumption of total fruits and vegetables is associated with a reduced risk of metabolic syndrome,[24] osteoporosis,[25] and breast cancer.[26] Excess consumption of sugar as well as fatty foods is associated with diabetes, hypertension, heart disease, and other chronic diseases.[27] Increased fat intake and high-fat diets were associated with increased body weight, BMI, and the risk of overweight and obesity.[28]

Numerous comorbidities, such as cardiovascular risk factors including diabetes, hypertension, and dyslipidemia, are common in perimenopausal women.[29] A woman's health can be greatly impacted by a family history of diabetes, high blood pressure, and heart disease, which increases her chance of getting these problems during perimenopause.[30] Family history puts perimenopausal women at increased risk.[31] Age is a significant risk factor that is linked to cardiometabolic parameters.[7] This highlights how important it is for her to assess her health.

Women's health at this stage depends greatly on their understanding of menopause and health-promoting practices. Women do not regularly include health-promoting activities in their daily routines.[32] Modifications in lifestyle during the perimenopausal years may have a significant role in influencing long-term health outcomes for women. A woman's midlife perimenopause is a good time to talk about health screening. Perimenopausal women should assess their risk factors to quickly implement a lifestyle, to modify or reverse these negative effects. Using a simple screening questionnaire, the current study aims to determine the lifestyle practices and habits of perimenopausal women.

## Methods and Materials

The objective of the study was to identify the perimenopausal women with unhealthy lifestyle. A total of 148 perimenopausal women who met the selection criteria were chosen from 300 women who were in the 45 to 55 age range, could read and write in Kannada or English, and the rest were excluded as they were menopausal and had suffered from comorbid conditions such as heart disease, cancer, or arthritis as the investigator planned for lifestyle intervention in the follow-up study. The list of women who are nonhealth professionals was obtained from the HR department of a private medical college hospital. The study employed a descriptive design and a complete enumerative sampling technique.

The Institutional Ethics Committee granted ethical permission (YEC1/2020/037). With the use of an informed consent form and a participant information sheet, the investigator introduced oneself and determined the subject's willingness to participate. They were given full autonomy to take part in the research. Every participant completed the self-reported lifestyle assessment questionnaire (LAQ), except the questions where the researcher took measurements of blood pressure, height, and weight (BMI) with standard protocol.

## Data Collection Tool

A modified lifestyle appraisal questionnaire (LAQ)[33] was used to collect the information on their lifestyle and scored

 

for level of risk. For most items, risks range from 0 (little or no risk) to 4 (high risk), while some are dichotomous. It is scored by adding up the level of risk. The total possible score on is 73. Higher scores are assumed to be associated with higher risks of disease and lower quality of life. The tool is valid and reliable, with $r = 0.83$. Permission for the use of the tool was obtained from the authors.

Two parts make up the original LAQ. Only the first section which discusses lifestyle choices, habits, and risk factors is used here. The second section is about cognitive assessment of stress. A few changes were made to the BMI category (which now complies with WHO and Asian norms); the option has a current history of heart disease and is replaced with dyslipidemia as this was an exclusion criterion.

Every participant completed the self-reported LAQ by choosing the appropriate options among the alternatives given, except the questions where the researcher took measurements of blood pressure, height, and weight (BMI) with standard protocol. The participants filled out the printed form at their workplace; it took about 20 minutes to fill out the form.

## Results

The majority of the respondents (85.8%) are between the ages of 45 and 49 years. The remaining subjects are between the ages of 50 and 55 years; 85.1% of the subjects completed their primary education, which was the highest percentage, followed by higher primary education (12.8%) and PUC (2%). All of the subjects were nonhealth professional personnel who worked as female nursing orderlies or housekeepers in the facility. They were all from low-income families, making less than Rs. 20,000 a year.

With a range of 8 to 35, the mean lifestyle appraisal score was $19.17 \pm 6.88$. The unhealthy their lifestyle, the higher the score. The maximum score as per the tool is 73.

A significant proportion (91.9%) of the participants consumed tea or coffee at a rate of less than three cups per day. Notably, a considerable percentage of women (31.8%) reported having a good night's sleep approximately once a week. The majority of the subjects did not engage in regular exercise (43.9%), recreational activities (62.8%), or relaxation exercises (81.1%). A substantial number (54.1%) of women had encountered one to two stressful events in the last 6 months, with friends and family occasionally available for support (64.7%). None of them received love and affection every day, but rather on an occasional basis (69.6%).

Less than half of the participants did not use any medications for sleep or anxiety (34.5%). About half (45.9%) of them experienced fatigue daily. The majority (81.1%) reported consuming meals with fruits and vegetables only two to three times a week, while fatty foods or sweets were ingested once a day (60.1%). Notably, none of the participants smoked or consumed alcohol. A small fraction had a family history of high blood pressure and diabetes mellitus (DM) (3.4 and 4.1%). A small number of women experienced hypertension (4.1%), DM (6.1%), dyslipidemia (2%), and hypertension combined with DM (2%). Perimenopausal women frequently have many comorbidities, including diabetes, hypertension, and dyslipidemia.[7]

Some women exhibited systolic blood pressure levels between 120 and 129 or 130 and 139 (8.1 and 8.8%), and the diastolic blood pressure remained within the normal range in the majority (95.9%). Furthermore, most (45.3%) participants were classified as overweight, with a BMI falling between 23 and 24.9 (►**Table 1**).

There was an association between age and education with lifestyle appraisal scores of perimenopausal women ($p = 0.001$ and $p < 0.0001$). Test statistics used were Mann–Whitney's *U*-test and Kruskal–Wallis' *z*-test, respectively (►**Table 2**).

## Discussion

Despite decades of efforts to raise public health awareness, many women still exhibit high rates of modifiable risk factors. The risks such as unhealthy dietary choices, sedentary lifestyles, and physical inactivity persist in the vast majority of women,[34] which is evident in the present study.

According to the questionnaire, the greatest lifestyle appraisal score was just 35 out of a possible 73, and the mean score was $19.17 \pm 6.88$. The higher the score, the unhealthier the lifestyle. The questionnaire does not specify a threshold score; instead, each risk factor can be considered independently to create a customized threat.

None of the women consumed cigarettes or tobacco; they had past and present smoking and consumed alcohol. The present study is consistent with a comprehensive research survey conducted by Mishra et al, in India, which revealed that women were extremely unlikely to smoke, use tobacco products, or drink alcohol.[35] More than half of the women in this study reported having trouble sleeping, and the results are consistent with another study that found climacteric women's sleep is readily disrupted.[36] According to a study, there was a substantial 1.50-fold increase in the prevalence of poor sleep quality when women entered the perimenopause from the premenopause.[37] In the present study, the majority of the subjects did not engage in regular exercise, recreational activities, or relaxation exercises. A study revealed that physical activity decreased over time in perimenopausal women.[38] A substantial body of evidence indicates that an insufficient percentage of adults meet the international recommendations for maintaining a healthy and active lifestyle,[39] which is more evident with advancing age, particularly among women.[40] An active lifestyle established during this life stage is a predictor of later-life active aging.[41]

About half of them experienced fatigue daily. Perimenopausal women frequently complain of being tired, with studies highlighting its impact on their quality of life and overall well-being.[21,22] The majority reported consuming meals with fruits and vegetables only two to three times a week, while fatty foods or sweets were ingested once a day. The study in Indonesia examined the dietary pattern of consuming fatty food, processed food, and snacks, which was associated with obesity parameters such as BMI and waist circumference in healthy women.[42]

 

**Table 1** Distribution of lifestyle practice of perimenopausal women based on an LAQ ($N = 148$)

| Items of LAQ | Responses | *n* (%) |
|---|---|---|
| Drink tea or coffee | No/up to 3 cups/day | 136 (91.9) |
| | 4–8 cups | 12 (8.1) |
| Has good night sleep | Most night | 62 (41.9) |
| | About every second night | 32 (21.6) |
| | About once a week | 47 (31.8) |
| | Rarely | 7 (4.7) |
| Does exercise or go for a walk | 3 or more times a week | 56 (37.8) |
| | About once a week | 27 (18.2) |
| | Not at all | 65 (43.9) |
| Participates in an activity or recreation (gardening, reading, watching TV) | Once a week | 55 (37.2) |
| | Not at all | 93 (62.8) |
| Does relaxation exercise | At least once a week | 28 (18.9) |
| | Not at all | 120 (81.1) |
| Suffers from physical symptoms—fatigue | Not at all | 7 (4.7) |
| | A few times a year | 15 (10.1) |
| | Once or twice a month | 20 (13.5) |
| | Once or twice a week | 38 (25.7) |
| | Every day | 68 (45.9) |
| Eat meals with vegetables, fruits, and lean meat | At least once day | 28 (18.9) |
| | 2–3 times a week | 120 (81.1) |
| Eats fatty or sweet foods | Once or twice a week | 59 (39.9) |
| | About once a day | 89 (60.1) |
| Suffers from diabetes | Yes | 9 (6.1) |
| High BP | Yes | 6 (4.1) |
| Both | Yes | 3 (2) |
| Dyslipidemia | Yes | 3 (2) |
| No comorbidities | – | 127 (85.8) |
| Has close friends and family to help with a problem | Always available | 1 (0.7) |
| | Often available | 66 (44.6) |
| | Sometimes available | 81 (64.7) |
| Gives and receives affection | Occasionally each day | 103 (69.6) |
| | Once/twice a week | 45 (30.4) |
| Experienced major stressful events in the last 6 mo | None | 2 (1.4) |
| | 1–2 | 80 (54.1) |
| | 3–6 | 66 (44.6) |
| Has a family history of heart disease<br>High blood pressure<br>BP<br>Both BP and DM | Yes<br>Yes<br>Yes<br>Yes<br>No | 2 (1.4)<br>5 (3.4)<br>6 (4.1)<br>3 (2)<br>132 (89.1) |
| Do you take any drugs for anxiety, sleep, or painkillers | No | 51 (34.5) |
| | Only once or twice a year | 62 (41.9) |
| | Once or twice a month | 35 (23.6) |
| Smokes/takes alcohol | No | 148 (100) |
| Systolic blood pressure (mm Hg) | <120 | 116 (78.4) |

 

**Table 1** (*Continued*)

| Items of LAQ | Responses | *n* (%) |
|---|---|---|
| | 120–129 | 12 (8.1) |
| | 130–139 | 13 (8.8) |
| | 140–149 | 5 (3.4) |
| | 150–159 | 1 (0.7) |
| | 160+ | 1 (0.7) |
| Diastolic blood pressure (mm Hg) | <80 | 142 (95.9) |
| | 80–85 | 1 (0.7) |
| | 90–95 | 5 (3.4) |
| BMI | <18.5 | 19 (12.8) |
| | 18.5–22.9 | 31 (20.9) |
| | 23–24.9 | 67 (45.3) |
| | 25–29.9 | 29 (19.6) |
| | >30 | 2 (1.4) |

Abbreviations: BMI, body mass index; LAQ, lifestyle appraisal questionnaire.
Note: The responses with cell value zero are not mentioned.

**Table 2** Association of lifestyle practice with demographic variables ($N$ =148)

| Demographic variables | Category | *n* | Test statistics | *p*-Value |
|---|---|---|---|---|
| Age | 45–49 y | 126 | 776.5 | 0.001[a] |
| | 50–55 y | 22 | | |
| Education | Primary | 126 | 21.102 | <0.0001[a] |
| | High school | 19 | | |
| | PUC | 3 | | |

[a]$p$ <0.05 is significant.

The present study showed that a considerable percentage of women reported having stress, and nonreceipt of love and affection. A study reported that perimenopausal women experienced the highest level of stress and were more severely bothered by feelings of depression and anxiety.[43] A small fraction had a family history of high blood pressure, dyslipidemia, and DM. Results of a cross-sectional study conducted by Jabbar et al, among 1,000 people visiting hospitals showed 44.8% had a family history of DM and 49.1% had hypertension.[44] According to Troìa et al, perimenopausal women were commonly affected by diabetes, hypertension, and dyslipidemia, all of which were present in some of the women in the current study.[29]

Only a few women had systolic blood pressure levels between 120 and 129 or 130 and 139 (8.1%, 8.8%), with the normal diastolic blood pressure in the majority (95.9%). A study by Tasić et al reported that before reaching menopause at the age of 45 to 55 years, women have slightly lower blood pressure levels and also a lower chance to develop hypertension.[45] Most of the participants were overweight, which is one of the predictors of coronary artery disease. With a steady increase in the number of overweight and obese people, there is a growing public health concern about body size and lifestyle diseases, as reported by Sand et al and Manoharan et al.[46,47] A comprehensive review conducted by Verma et al highlighted the several factors linked to obesity during the perimenopausal transition.[48]

All the women belonged to low income family. Age and education were related to perimenopausal women's lifestyle assessment ratings. According to Akinyemiju et al, the risk of health problems is increased for perimenopausal women with low incomes and educational levels.[4] In a study, it was reported that women with low socioeconomic status had faced with several barriers to adopting a healthy lifestyle.[49]

This study utilized a straightforward self-reported questionnaire to evaluate healthy lifestyle practices. The availability of such a simple questionnaire can motivate women to identify and engage in healthier behaviors. It is recommended that women personally assess their health, although nurses and primary care providers can also use this screening tool to evaluate women's health. Additionally, there is literature on the use of more comprehensive LAQs.[50] The significance of this study lies in its use of a practical and easy-to-use screening tool to assess women's lifestyles. By making health assessment more accessible, the study encourages proactive health management and promotes the adoption of healthier

 

behaviors among women. The findings underscore the potential of simple questionnaires in facilitating health awareness and intervention, which is crucial for improving overall women's health outcomes in perimenopausal women.

## Conclusion

Despite health promotion initiatives targeted at altering these lifestyle characteristics, women still report lower rates of physical activity, intake of fruits and vegetables, and higher BMIs than are advised for optimal health. The study seemed important to identify the health risk and emphasizes encouraging healthy behaviors for lowering modifiable risk factors before they worsen into major cardiovascular problems, which is made possible in the follow-up research by the investigator.

### Note

The authors assure that the manuscript has not been submitted to any other journal for publication. The Institutional Ethics Committee has approved this project (Protocol No.: YEC1/2020/037).

### Conflict of Interest

None declared.

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